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National Veterinary Medical Association of Great Britain and Ireland.

FORTY-FIFTH ANNUAL MEETING, TORQUAY, 1927.

Presidential Address

BY

PROFESSOR G. H. WOOLDRIDGE, F.R.C.V.S., M.R.I.A., LONDON.

Ladies and Gentlemen,

It is one of the duties imposed upon your President by our constitution that he shall deliver a Presidential Address to you at the Annual Congress. I therefore make no apology for inflicting myself upon you under the present conditions, though I can assure you that had it been left to my own judgment, I should most certainly have spared you the ordeal. I believe that one of the main reasons for calling upon the President for an Address is that he shall give some account of his stewardship during his period of office.

One pleasing fact I may note at the outset is that the Association is increasing in prosperity, usefulness and in membership. During the past year there has been an accession to the roll of membership of over 140 Veterinary Surgeons, but owing to the unfortunate loss from death and other causes the net increase is reduced to a little over half that number. When this is compared with the net increase of fourteen members during the previous year, I think we have considerable cause for satisfaction.

Another very bright spot which augurs well for the usefulness of the Association, is the accession of various Colonial organisations to Divisional membership of the Association, and I am proud to note that they are so widely extended as to include three Continents other than Europe and that applications from a fourth Continent (Asia) are expected to mature at almost any moment. The new Divisions include Associations from British Columbia, Southern Rhodesia and Uganda, and New Zealand. We have also received a very cordial invitation to send delegates to the next General Meeting of the Australian Veterinary Association, at Melbourne, Victoria, on February 14th, 15th and 16th, 1928. We appreciate this compliment very highly indeed, but I feel it will be difficult or impossible to find anybody able to take so long a journey and we shall endeavour to be represented by one of our members resident in Australia.

Your Council has been kept very busy during the year conducting the affairs of the Association and considering various Resolutions submitted for its approval by Divisions and, wherever possible, acceding to them and taking steps to assist in carrying their recommendations into effect.

The Appointments Committee has very carefully considered the question of salaries for whole-time appointments of Veterinary officials and has made strong representations in this connection to various Public Bodies, including the Colonial Office and the Office of the High Commissioner for India. The Council is also exerting itself to assist the Officers of the Malayan Veterinary Service in their endeavour to obtain an improvement in the general status, rate of pay and promotion of the Service. Since the Annual Report was issued we have received an intimation from the Colonial Office to the effect that it has now been decided to institute in the autumn an enquiry into the conditions of service of Veterinary Officers, not only in Malaya, but throughout the Colonies and Protectorates, and a promise has been made that the Council's observations with regard to the salaries of Malayan Officers will receive full consideration in relation to that enquiry.

The Council has also had under consideration the desirability for the institution of some form of control of the distribution of Tuberculin, and representations have been made with this end in view, in order to curtail as far as possible its fraudulent use. I am pleased to state also that at the Annual Congress of The Royal Sanitary Institute, held at Hastings, in July last, I, as your delegate, was able to demonstrate the necessity of such control, and the Congress passed a Resolution endorsing the same principle to be forwarded to the Ministry of Agriculture and the Ministry of Health.

The duties that devolve upon your President during his year of office are, as some of you may realise, very onerous and take up an enormous lot of his time. A small idea of the extent of these duties may be gathered when I state that during the year I have attended over seventy meetings of Council, Committees and Divisions as widely separated as Newcastle-upon-Tyne, Manchester, and including also a number

of visits to Torquay with a view to assisting in the making of arrangements for the Congress here this week.

I think I ought to take this opportunity of making some reference to the prospects before the Profession since in these days of mechanicalisation it is not to be wondered at that some Veterinary Surgeons are apprehensive with regard to the future, and in a community such as ours one would be astonished if there were not also a few pessimists. My carefully considered opinion, however, is that there is no cause whatever for pessimism. On the contrary, I am strongly of opinion that there is a rosy future before the Veterinary Profession. An old friend of mine, a former President of this Association, used frequently to state in connection with the ups-and-downs of daily life and practice, that "as one door closes another door opens," and that undoubtedly applies, to a very marked degree, at the present time. There was never a period at which the services of the Veterinary Profession on behalf of the community were more widely sought after than at the present time. The public at large is only now awakening to the fact that the Veterinary Surgeon is essential both in the realms of Public Health and National Economy. Although there has been a decline in the number of horses, according to the latest agricultural returns, of about 50,000 out of 1,250,000, it may be a surprising fact to many to know that there were last year in London more horses working than there were in 1913, in pre-war days. It is satisfactory to note, also, from the figures given below, that the livestock of the country in all instances has increased in numbers.

CATTLE.

	1927	1926	INCREASE.		DECREASE.	
	No.	*No.*	*No.*	*Per Cent*	*No.*	*Per Cent*
TOTAL OF CATTLE	6,275,000	6,253,100	21,900	0·4	—	—

SHEEP.

	No.	*No.*	*No.*	*Per Cent*	*No.*	*Per Cent*
TOTAL OF SHEEP	17,070,200	16,858,700	211,500	1·3	—	—

PIGS.

	No.	*No.*	*No.*	*Per Cent*	*No.*	*Per Cent*
TOTAL OF PIGS	2,687,300	2,200,000	487,300	22·1	—	—

Figures taken from Agricultural Returns of England and Wales, 1927.

Thus it is that the services of the Veterinary Surgeon are more sought after than ever before by the agricultural community with regard to the preservation of the livestock industry. This country has long been known as the market of the world for pedigree livestock. This is largely due, in the first instance, to the actual excellence of quality of British livestock, but also, and in no small measure, to the general absence of serious epizootic diseases. It is therefore essential that the Veterinary Profession maintains its position and its work, not only in order to reduce the danger of the introduction of such diseases here, but also so that in the event of their unfortunate occurrence, they may be readily recognised and speedily exterminated. In this connection, I may perhaps be excused for pointing out that really the Veterinary Profession is the most altruistic one in the country, for the extermination of these diseases is bound to carry with it a reduced demand for its services. The optimism in regard to agricultural work, however, is unfortunately dimmed at the present time by the great depression under which that great industry, undoubtedly the foremost industry of this country, is passing, and we earnestly hope that the day is not far distant when agriculture and the farmers in general will come into their own and a period of prosperity be restored.

The services of our Profession to the community in general are largely involved in the question of the Public Health. Many Local Government bodies have already realised this fact and have appointed whole-time Veterinary officials in the case of the larger towns and cities, and part-time Veterinary officials in the smaller towns and rural districts to assist them in carrying out their responsibility to the public, particularly in relation to the meat and the milk supply. A sound meat and milk supply is essential to the health of the community and can only be properly established with the assistance of the Veterinary Surgeon. In regard to meat, one might point out that the Veterinary Surgeon is the only man who, in the course of his training, is familiarised with animal pathology, which involves the changes produced in meat and meat products as the result of disease processes. He therefore is in a pre-eminent position to recognise sound and unsound meat. He is also the only man trained in the recognition of animal diseases during life, and I make no apology for stating that the meat supply can never be considered as properly safeguarded unless associated, both with *ante-mortem* and *post-mortem* inspection. With regard to the milk supply, it is an obvious fact that sound and wholesome milk can only be furnished by sound cattle, free from disease and properly managed. It is the Veterinary Surgeon's province to examine cattle yielding milk and to investigate all those instances where unsound milk is being delivered to the community. I would like to take this opportunity, however, of pointing out and emphasising that the unfortunate cow has frequently been wrongly blamed for the dissemination of disease. Certainly bovine tuberculosis may be transmitted to the human subject through the medium of infected milk, particularly in the case of children and invalids for whom milk constitutes the main, if not the sole, article of diet at critical susceptible times. No effort should be spared to prevent this terrible occurrence. Occasions have occurred, however, in which outbreaks of scarlet fever, typhoid fever and other epidemics have been traced to the milk supply, and I hasten to assert that the cow was not to blame in any of these instances, but that the milk had been contaminated after delivery by the cow. The investigation into

outbreaks such as these does not, however, fall into the province of the Veterinary Surgeon. It is entirely the duty of the Medical Officer of Health, although it is frequently necessary for the Veterinary Surgeon to be called in to exonerate the cow.

I feel I ought to make some short reference to the manœuvres which have recently taken place on Salisbury Plain, where the mechanised Army was opposed to Cavalry. I have been unable to ascertain the definite decision of the Umpires with regard to this contest, but I was rejoiced to read statements by a number of competent observers that the work of the cavalry was so remarkably efficient that they were able to rout the mechanised Army. If that is the case then the day must be long distant before the Army Veterinary Service can be dispensed with, a service to which one cannot refer without bearing in mind the great debt which the country owes to it on account of its wonderful service during the Great War.

I have been very interested, as no doubt most of you have been during the past week, with the controversy aroused by Sir Arthur Keith's address to the British Association at Leeds, in which he is reported to have stated that man has evolved from the anthrapoid ape and that the gorilla must be regarded as the ancestor of man, even though it has taken a million years to arrive at the present state. Such a statement overtaxes my credence, for if man has been evolving during that long time, so also must the ape of the present day, and it appears to me just as wrong to say that man has descended (or ascended if you prefer it) from the gorilla as it would be to assert that the gorilla has descended from man. Much more credible, and no doubt this is what was meant, is that both have evolved from a common stock resembling in fundamentals, both types as they exist to-day and not that either developed from the other. It is rather like a much branched tree of which the branches have grown from a common trunk and not from one another.

It is within the knowledge of most of you present that the College with which I am associated, namely the Royal Veterinary College, London, is sadly in need of rebuilding and is, in fact, literally collapsing in some directions. The College has been in existence about 140 years and has never until now made an appeal to the public for assistance. Rebuilding is now an absolute necessity, and the Council of your Association has very generously made a grant of 100 guineas towards the Rebuilding Fund. I would like to take the present opportunity to ask all of you who have not yet done so to consider if you can assist us in our efforts to make the Royal Veterinary College, London, one of the finest Institutions of its kind in the world and one fitting in fabric, educational and economic value to be the first Veterinary Teaching Institution of this great Empire. No doubt many of you have wealthy clients with generous, warm hearts and in some cases good balance sheets, who would be willing to assist us in our efforts to allay pain and suffering of all dumb animals, particularly those of our pets to whom we owe so much and which afford us so much pleasure in the ordinary course of life.

It will be of interest to you all to learn that, at its meeting yesterday, your Council gave consideration to the question of the position of the veterinary surgeon in relation to the work of societies having for their object the alleviation of the suffering of animals belonging to poor people. The Council discussed this matter at great length, and eventually arrived at a unanimous conclusion, which it expressed in the following resolution :—

"That the Council of the National Veterinary Medical Association of Great Britain and Ireland has every sympathy with all efforts made to further humanity to animals, and that it feels sure that all members of the profession will, on all occasions where necessary, render assistance at reduced fees in deserving cases."

I would like to express the hope that members will attend the meetings of the various Sections and enter spiritedly into the discussions, in order that the main object of the Congress, the spread of knowledge and information, shall be achieved. I also hope that the various social functions which have been arranged for your enjoyment will be well attended and that each and all of you will do your best to make them a success.

In conclusion, I would remind you all of the Public Lecture, which we are to be privileged to hear later to-day, when Sir John M'Fadyean is to address us and members of the public on that great problem of "The Prevention of Tuberculosis in Animals." No doubt this is of greatest importance to Agriculture in the first place, but its importance in regard to the general community cannot be over-estimated owing to the frequency with which both meat and milk may be affected with this disease and the possibility of its occurrence in the human subject from one or both of these sources.

Despite their lightness of vein, we think it appropriate, in view of the President's references to the descent of man, to reproduce here the verses by "Touchstone," which adorned the *Morning Post* two days after delivery of the Address :—

THE POET AND THE APE.

(A professor of veterinary surgery has challenged Sir Arthur Keith's dictum that man is directly descended from the apes.)

Thanks, Professor, at least from me,
When you say my classical features
Were not evolved from the chimpanzee—
One of the plainest of creatures—
For I know right well the family who
Take afternoon tea at the London Zoo.

(*Continued at foot of first column next page.*)

J. W. McINTOSH, M.R.C.V.S., F.R.S. (Edin.). President N.V.M.A., 1927-8.

The acclamation with which the name of Mr. J. W. McIntosh was received when proposed at the Congress at Torquay as President of the National Veterinary Medical Association for the year 1927-8, was proof that he is eminently fitted to fill the high position to which he was unanimously elected.

What are the history and qualifications of this Scot that he should be selected to fill this office? By his deeds ye shall judge him.

Mr. McIntosh is a native of the beautiful district of Pitlochry, so well known to visitors from all over the world; a real Highlander and a descendant from forefathers who for generations have been agriculturists, he devoted some years to this industry before entering the Royal (Dick) Veterinary College, Edinburgh, where he distinguished himself as a student in surgery, medicine, obstetrics and hygiene.

Having graduated, he acted for some time as assistant to Mr. Carter, F.R.C.V.S., of Keighley, Yorkshire, and then returned to his native land where he established a practice in Dalkeith, Midlothian, in which he was eminently successful.

Mr. McIntosh was very active and exceedingly popular, also, as Inspector for the Diseases of Animals Acts and the Public Health (Scotland) Act, Veterinary Adviser to the Edinburgh and East of Scotland Agricultural College, a Governor of the Royal (Dick) Veterinary College, a Member of the Town Council of Dalkeith, and a Life Member of the Highland and Agricultural Society of Scotland.

"For Services rendered to Veterinary Science, to the agricultural interests of Scotland and as a Governor of the College from which he graduated," Mr. McIntosh had conferred upon him in 1911 the coveted distinction of F.R.S.E. In 1908 he was appointed Veterinary Adviser to the Proprietors of Hay's Wharf, Ltd., London, a position which he still occupies. Before leaving Dalkeith, he was entertained at a Complimentary Dinner, which was attended by upwards of one hundred gentlemen representing Agriculture, Public Bodies, and Veterinary Science, and made the recipient of a piece of silver plate and a cheque for a handsome sum of money. The Chairman (Ex-Provost Chisholm), in a highly laudatory speech, alluded to the splendid public work done by Mr. McIntosh, and stated that coupled with a lovable character he possessed the fighting blood of a real Highlander—ever ready to fight for his country if necessary, he had prepared himself for any such event by being a member of the Lothian and Berwickshire Yeomanry. In conclusion, Provost Chisholm uttered the prophecy "Mr. McIntosh, whom we have learned to honour and to love, has a great future before him in London, and will be called to further and greater honours than he has yet received." That prophecy has been amply fulfilled for, since coming to London he is equally loved and honoured, and has earned the reputation of being an outstanding authority on the feeding and management of transport animals, while there is certainly no better judge of a commercial horse in this country.

The interest which Mr. McIntosh took in his profession in Scotland, where he was for two years President of the Scottish Metropolitan Veterinary Medical Association, has been continued in England. A member of the Council of the Royal College of Veterinary Surgeons since 1921, he has been President of the Royal Counties, the Southern Counties, and the London Central Divisions of the N.V.M.A., and received the Victory Medal for the good work he did for the "Central." His work for the "National," particularly since its reconstruction, is well known to all its members, not only as Vice-President, but as Chairman of the Finance Committee for the past six years and as a member of other committees, especially the Editorial. Such a record explains why he has been chosen as our President, and we predict for him a successful year of office, in which he will have the encouraging assistance of Mrs. McIntosh, whom to know is to love.

Mr. McIntosh, in a short speech after being elected, expressed the fear that his official duties might prevent him from devoting as much time to the onerous duties of President as he might wish, but he may rest assured he will have the loyal co-operation of every member of Council and we feel certain that every member of the "National" will do all that is in her or his power to assist and encourage our President, whose ambition may be summed up in the words:—

"Then let me try each day and hour
To act upon this plan;
Whatever good is in my power,
To do it while I can."

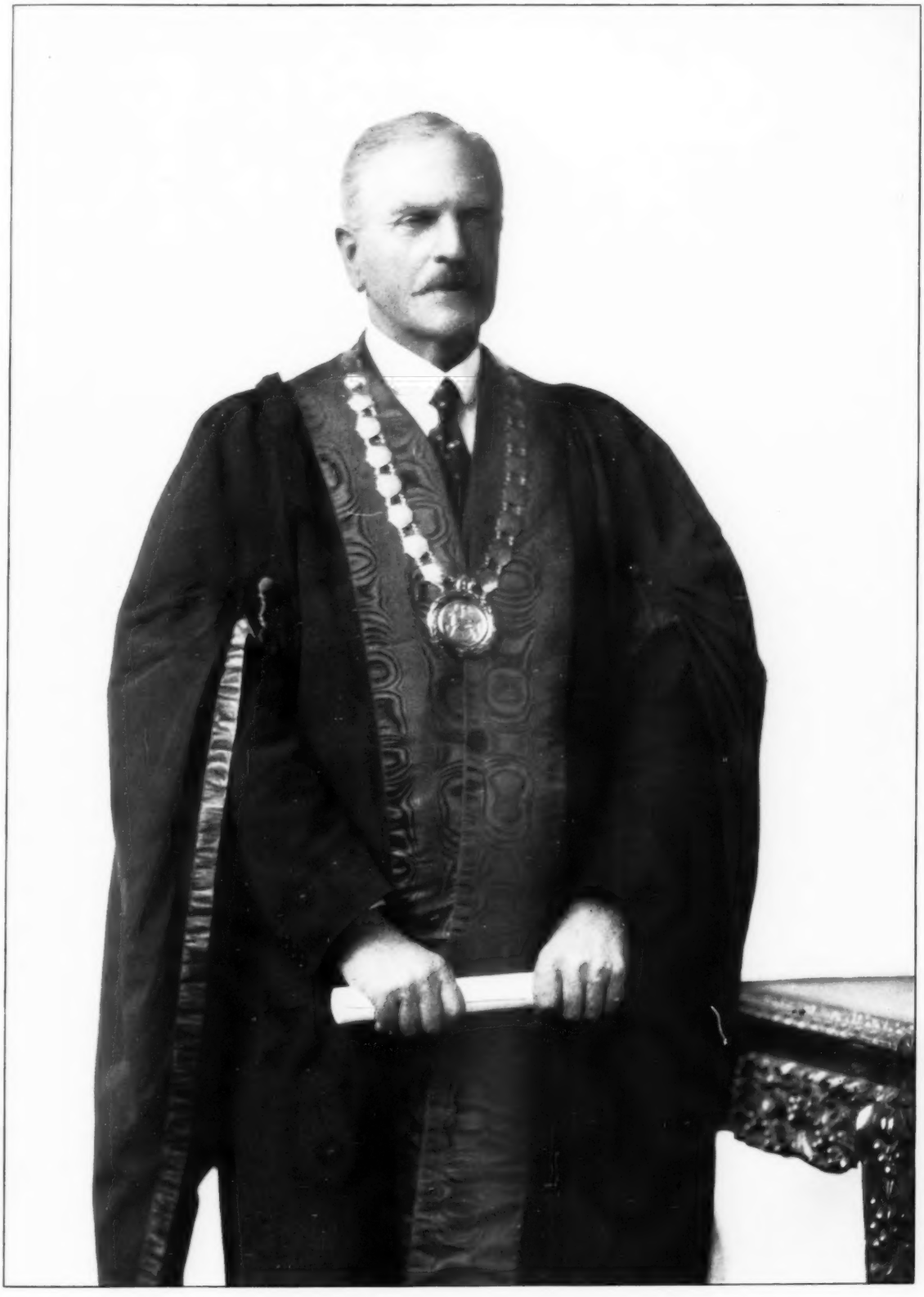
(*Continued from previous page.*)

I can't believe that my classical nose
(Though Sir Arthur Keith has said it)
Was ever a bridgeless horror like those,
Though it might be held to my credit
To have done so much by way of improvement
And achieved success in an uplift movement.

These glowing eyes that in frenzy roll
As I sing on various topics,
Were they ever like those of the humble soul
Of the treetops out in the Tropics?
Did my so-called ancestor ever enthuse
The heart of his kind with a simian muse?

A common ancestor? I shall try
To be not too much offended,
It is better than thinking, indeed, that I
Am truthfully ape-descended;
A distant cousin the chimp—but ah!
Not my great-to-the-*n*th-power Grandpapa!

TOUCHSTONE.



J. W. McIntosh, Esq., M.R.C.V.S., F.R.S.E.,
President of the National Veterinary Medical Association of Gt. Britain and Ireland, 1927-8.

The Inaugural Meeting.

CIVIC WELCOME TO TORQUAY.

The Inaugural Meeting of the Congress took place at the Torquay Town Hall, on Tuesday morning, September 13th, when the attendance of delegates and ladies exceeded 200.

The SECRETARY (Mr. F. Knight) having read the notice convening the meeting, the PRESIDENT (Professor G. H. Wooldridge) offered a cordial welcome to all the delegates, who numbered, he said, not only members of the veterinary profession at home, but delegates from overseas, including representatives of the Argentine Legation, the Colonies and Dominions. On behalf of the Council of the Association he extended a hearty welcome to one and all, and expressed the hope that members would enter into the discussions on the papers, and so find their visit to Torquay a profitable, as well as a pleasurable one. (Applause.)

The Mayor of Torquay (Mr. F. J. MARNHAM) who was received with applause on rising to give his address of welcome, said: Mr. President, ladies and gentlemen, it is my very pleasant duty, in the name of the Corporation of Torquay, and, I feel sure also in the name of the citizens, to give you this morning a very hearty welcome. We hope your visit to our beautiful town will not only be a profitable one from the point of view of your profession, but that you will have a very pleasant time socially. Many of you have been to Torquay, no doubt, on previous occasions, but there are some, especially our friends from overseas, who are paying a visit for the first time. It has been my privilege to have travelled all over the world, and I hope our overseas friends will think, as I do, after they have seen our surroundings, that Torquay is a place that is very hard to beat. I also wish to say that if there is anything the Corporation can do during your visit to make your stay any more profitable or pleasurable, we shall be delighted to do. (Applause.)

On the motion of the President a cordial vote of thanks was accorded to the Mayor, and carried with acclamation.

THE ANNUAL GENERAL MEETING.

Following the civic welcome, the business of the Annual General Meeting was proceeded with.

The President, Professor G. H. Wooldridge, occupied the chair, and the following ladies and gentlemen signed the attendance book.

LIST OF THOSE PRESENT.

Mr. S. G. Abbott, Capt. J. Anderson, Major W. Ascott, Capt. J. J. Aveston, Capt. and Mrs. J. R. Barker, Mr. N. S. Barron, Mr. and Mrs. Hugh Begg, Mr. and Mrs. J. Bell, Capt. S. C. J. Bennett, Mr. W. G. Blackwell, Mr. and Mrs. P. W. Bloye, Mr. E. C. Bovett, Mr. and Mrs. E. W. Bovett, Lt.-Col. and Mrs. H. G. Bowes, Dr. O. Charnock Bradley, Mr. G. B. Brook, Mr. and Mrs. W. H. Brooke and Miss Brooke, Mr. J. Brown (Perth), and Mr. Wm. Brown (Aberdeen), Capt. and Mrs. E. J. Burndred, Major W. G. Burndred, Mr. and Mrs. H. E. Bywater, Mr. and Mrs. A. J. Cattell, Major Frank Chambers, Capt. F. Christopher, Mr. and Mrs. H. S. Cockburn, Mr. and Mrs. J. L. Cormack and Miss Cormack, Mr. and Mrs. J. Wright Conchie and Miss Wright Conchie, Prof. and Mrs. Craig, Mr. and Mrs. R. R. Dalling, Mr. T. Dalling, Mr. and Mrs. H. J. Dawes, Major and Mrs. Brennan De Vine, Mr. and Mrs. J. C. De Ville, Rai Sahib Debakar Dey, Major and Mrs. J. A. Dixon, Mr. and Mrs. P. F. Dolan, Mr. K. D. Downham, Mr. W. A. Doughty, Major G. W. Dunkin, Mr. and Mrs. J. Dunstan, Mr. W. T. Edwards, Mr. and Mrs. H. S. Elphick, Mr. and Mrs. W. G. Evans, Mr. R. Ferris, Mr. and Mrs. A. B. Forsyth and Miss Nancy Forsyth, Capt. J. Fox, Capt. H. Fraser, Mr. M. T. Giblin, Mr. F. Leeds Gooch and Miss Gooch, Capt. O. V. Gunning, Capt. Ross Grant, Mr. R. W. Hall, Mr. W. A. Hancock, Dr. Tom Hare, Mr. W. Harris, Mr. F. T. Harvey, Mr. J. F. Healy, Capt. J. R. Hewer, Capt. S. E. Hill, Prof. F. T. G. Hobday, Major and Mrs. T. H. Hobson, Mr. and Mrs. J. Holroyd, Mr. W. F. Howes, Mr. and Mrs. R. Hudson, Mr. and Mrs. H. Tudor Hughes, Capt. H. E. Jackson, Capt. W. D. John, Mr. R. Ewing Johnston, Mr. and Mrs. R. Jones, Mr. T. Eaton Jones, Mr. H. C. I. Kelly, Mr. and Mrs. Herbert King, Mr. and Mrs. W. W. Lang, Mr. G. D. Lansley, Mr. A. Levie, Capt. T. W. Lloyd, Capt. J. F. Macdonald, Mr. J. McDougall, Major W. A. Macgregor, Mr. J. W. McIntosh and Miss McIntosh, Mr. and Mrs. G. P. Male, Capt. G. D. Martin, Mr. J. Martin, Mr. and Mrs. J. H. Mason, Mr. and Mrs. Chas. Masson, Capt. and Mrs. F. C. Minett, Capt. W. M. Mitchell, Mr. R. F. Montgomerie, Major-General Sir John Moore, Capt. S. J. Motton, Mr. G. D. Munro, Mr. R. Barons Nelder, Mr. W. B. Nelder, Mr. W. Noar, Mr. and Mrs. E. J. L. Norman, Mr. T. Parker, Mr. R. P. Parsonage, Mr. J. M. L. Penhale, Mr. and Mrs. R. E. L. Penhale, Capt. R. H. Penhale, Mr. and Mrs. C. E. Perry, Mr. J. L. Perry, Capt. J. Pollard, Mr. W. A. Pool, Mr. W. A. Powell, Major D. S. Rabagliati, Mr. H. Caulton Reeks, Mr. W. D. Rees, Dr. Juan E. Richelet, Capt. J. P. Rice, Mr. and Mrs. J. W. Rider, Mr. W. Roach, Capt. H. K. Roberts, Mr. H. L. Roberts, Mr. and Mrs. H. C. Rockett, Capt. F. C. Scott, Mr. and Mrs. G. R. Simpson, Lt.-Col. P. J. Simpson, Capt. R. Simpson, Mr. S. H. Slocock, Prof. A. R. Smythe, Mr. R. H. Smythe, Major A. Spruell, Mr. and Mrs. A. W. Stableforth, Mr. F. H. Stainton, Mr. H. P. Standley, Mr. W. S. Stevens, jun., Mr. W. Lyle Stewart, Mr. O. Stinson, Capt. R. J. Stow, Major and Mrs. J. H. Taylor, Mr. E. J. Thorburn, Mr. H. W. Townson, Capt. W. K. Townson, Mr. and Mrs. T. F. Trewin, Dr. R. W. Tuck, Mr. A. E. and Dr. Mary Ward, Mr. R. D'Oyley Watkins, Mr. E. Alfred West, Mr. and Mrs. A. Whicher, Prof. A. W. Whitehouse, Mr. T. Wilkinson, Mr. and Mrs. F. W. Willett, Mr. J. Willett, Capt. W. R. Williams, Mr. and Mrs.

W. Woods, Mr. S. de M. Woodward, Mrs. G. H. Wooldridge and Miss L. H. Wooldridge, Mr. W. R. Wooldridge, Major W. N. Wright, Lt.-Col. T. Dunlop Young, and Mr. W. Jackson Young, together with Mr. F. Knight (General Secretary), and Mr. W. Brown (Editorial Representative).

Apologies for Absence.

The Secretary intimated receipt of apologies for absence from the following: Lt.-Col. J. W. Brittlebank, Prof. J. B. Buxton, Mr. J. H. Carter, Major R. Catmur, Mr. J. C. Coleman, Capt. J. Connor, Mr. C. Crowhurst, Prof. A. Ciuca, Mr. J. Forbes, Mr. A. Gofton, Mr. H. P. Hogben, Mr. R. Hughes, Mr. C. O. Langley (Solicitor), Capt. N. H. MacAlister, Major H. Peele, Mr. W. W. Peggie, Capt. A. W. N. Pillers, Mr. W. W. Reekie, Mr. E. Brayley Reynolds, Mr. R. J. Rae, Mr. T. Slipper, Mr. Henry Taylor, Mr. S. Villar, and Col. S. K. Walker.

Professor G. H. Wooldridge then gave his Presidential Address, which was received with great enthusiasm and for which he was accorded the hearty thanks of the members.

[This Address is reproduced at the commencement of this issue.—Ed.].

Election of President.

The President: The next duty before you is the election of your president for 1928. It is one of the pleasant duties which devolves on your president, and indeed a great privilege, for me to nominate my successor, the nomination having been approved and received the commendation of your Council. I am going to propose the name of a member of the Association for whom we all have a very high regard, and who has done and is doing an enormous amount of hard spade work, and as it is likely that the meeting next year will be held in the North, it was thought that a man who was both of the North and South would be acceptable. The name I am going to put forward is that of an Anglo-Scot, namely, Mr. J. W. McIntosh. (Applause.) I am glad to know that he does not require much commendation from me. Mr. McIntosh did an immense amount of good work in the North before he came to us in the South. His interests are as widespread as his movements, and I am very certain he will make a very excellent President next year.

Mr. F. L. Gooch having seconded, the nomination was carried unanimously and with applause.

Mr. J. W. McIntosh: Worshipful Mayor, Mr. President, ladies and gentlemen, you will not, I know, expect me to say much to you on this occasion, because I do not profess to be much of a public speaker, but I very sincerely appreciate the great honour you have done me to-day, and I need hardly assure you that during my year of office I shall endeavour to uphold the traditions of the chair and the work of this National Veterinary Medical Association of Great Britain and Ireland. Again I thank you very cordially for the honour you have conferred upon me. (Applause.)

The President: There is one other little item we must carry through before the ladies leave us. We have received a very cordial invitation to hold our next Congress in Newcastle-on-Tyne, and I will read the letter we have received from the Lord Mayor.

Lord Mayor's Chamber,
Town Hall,
Newcastle-upon-Tyne,
15th December, 1926.

My dear Sir,

I understand that it has been suggested that the National Veterinary Medical Association of Great Britain and Ireland should be invited to hold the National Veterinary Congress in this city in 1928, and that the question of venue will be taken into consideration in due course.

I gather that it is customary for the Lord Mayor and Sheriff (where there is a Sheriff) to attend the Congress and offer a Civic Welcome to those taking part in the proceedings, and, although the Congress above referred to is not to be held until the year 1928, I feel perfectly confident that I can give an assurance on behalf of my successor in office, and on behalf of the Sheriff of that year, that Newcastle will wish to show the same consideration to this important body that has been extended to it in other places, and you are, therefore, quite at liberty to give assurance to this effect at your approaching meeting.

Believe me,
Yours faithfully
Arthur W. Lambert,
Lord Mayor.

Professor Wooldridge,
Royal Veterinary College,
Camden Town,
London, N.W.1.

That invitation has been backed up very strongly by representatives of the North of England, and the Council, bearing these things in mind, has decided to recommend that the Congress next year be held at Newcastle, and I have pleasure therefore in proposing Newcastle as the venue of our next annual meeting.

Mr. J. W. Rider having seconded, the proposal was carried unanimously.

Major D. S. Rabagliati: There is just one thing I should like to mention before this meeting disperses, and that is concerning certain items which appear from time to time in the *Record*. I am not one of those who criticise unnecessarily, for I know that the *Record* is doing excellent work, but I do think it is a pity that items I am going to mention should be put in, because they are not suitable for inclusion. For instance, in the July *Record* on page 629, there is an item: "Why is a rabbit's nose always moist? Because it's powder puff is at the other end." (Laughter.) Then on June 18th there is another item: "I am the sweetest dog," etc. I do think these items are really out of place. (Hear, hear.) We are striving now to keep up our heads and be equal to the medical profession, but I feel that doctors reading our journal will think that it is somewhat derogatory to bring such matters into a scientific publication. A senior member of the profession wrote to me the other day sending me cuttings of some items which he

said he thought was a pity to have put into the *Record*, and so lower ourselves by publishing such stuff. It would really be much better to leave out such things as those that I have drawn attention to. (Applause.)

The PRESIDENT: I am quite sure that members of the Editorial Committee who are present will bear that in mind when their duties are being performed in future. Although the protest made by Major Rabagliati appears to have met with a good reception, I think it would be a pity if members of the profession entirely lost their sense of humour. There is, of course, a right and a wrong place for everything, but we should, I think, always try to preserve a balance. (Hear, hear.)

This concluded the public portion of the proceedings.

After a brief adjournment, during which the delegates and ladies were photographed at the side entrance to the Town Hall, the meeting was resumed as a private session for members only, and the PRESIDENT, resuming the chair, said: We will proceed with the programme as quickly as we can. Item No. 1 is to receive the Annual Report and Balance Sheet. They have already been circulated, and I propose from the chair that they be received. They are now open for discussion

No comment being made, the PRESIDENT proceeded: With regard to the report, gentlemen, if you find nothing in it to discuss, it is rather complimentary to your Council for you to accept it so complacently. Under these circumstances, I propose that it be adopted.

Mr. W. D. REES: I beg to second that.

The proposition was then put to the meeting and carried.

The PRESIDENT: The Balance Sheet also has been circulated. That is now open for discussion. In the meantime perhaps I will ask our Treasurer whether he would make a statement.

(The HON. TREASURER, Mr. E. Alfred West, here contributed a statement concerning the finances of the Association for the period January—September of this year).

The PRESIDENT: The Balance Sheet of last year is now open for discussion. The Hon. Treasurer thought it would interest you to know how we are standing this year up to the present.

There being no discussion,

Mr. J. W. MCINTOSH proposed that the Balance Sheet be received and adopted.

Lt.-Col. P. J. SIMPSON seconded the proposition, which was carried unanimously.

ELECTION OF REMAINING OFFICERS.

Vice-Presidents.

The PRESIDENT: Your Vice-Presidents are usually elected as representing the four branches of the Association: one for Scotland, one for England (North), one for England (South), and one for Ireland. The retiring Vice-Presidents are Mr. James Anderson (Scotland), Lt.-Col. J. W. Brittlebank (North of England), Mr. J. W. McIntosh (South of England) and Professor J. J. O'Connor (Ireland). As you have already elected Mr. McIntosh to the presidency for next year, he is not eligible as a Vice-President. Your Council considered this matter yesterday and makes the following nominations for your approval, or amendment if you so desire. For Scotland, the re-election of Mr. James Anderson; for England (North) the re-election of Lt.-Col. J. W. Brittlebank; for England (South), Major-General Sir John Moore, and for Ireland the re-election of Professor J. J. O'Connor. In the name of the Council I propose that these Vice-Presidents be re-elected.

Mr. J. WILLETT: I have much pleasure in seconding.

The PRESIDENT: Are there any other nominations, gentlemen? Then I declare the election of the Council's nominees. (Cheers.)

Hon. Secretary. The PRESIDENT: This is a duty that I am going to take upon myself—to nominate our Hon. Secretary for the ensuing year. Mr. Dawes (Cheers) has acted in this capacity in a most capable and tactful manner, and one cannot emphasise too strongly the necessity for those qualities, and particularly for tact, in the Hon. Secretary of an Association with such wide and diverse interests. I have very great pleasure, therefore, in proposing that Mr. Dawes be re-elected our Honorary Secretary. (Cheers.)

Mr. J. W. MCINTOSH: I would like to have the privilege of seconding that. Mr. Dawes is well known to every member of the profession—a more energetic and faithful member of the profession you could not find. (Cheers.) The election was made with acclamation.

Mr. H. J. DAWES: I thank you very much indeed for having re-elected me as your Honorary Secretary. I am very fond of the duties attaching to my office, and it is very nice to be associated with a body which is making such wonderful progress as is our Association. (Hear, hear.)

Hon. Treasurer. The PRESIDENT: You have already seen the results of the labours of our Honorary Treasurer. As I said at the Council Meeting last night, there is no member of the Association who knows more about the work of the Hon. Treasurer than I do myself, since I occupied the position for sixteen years. The duties were not so onerous in the early days, but subsequently they have become very heavy indeed, and I can assure you that it is impossible to get anyone to look after the financial affairs of the Association who can combine charm of personality with the business acumen necessary for the holding of such a post, as can our present Honorary Treasurer. I have, therefore, much pleasure in proposing that Mr. E. Alfred West be re-elected the Honorary Treasurer of the Association. (Cheers.)

Mr. H. J. DAWES: I should like, in seconding, to endorse all the remarks made by our President concerning Mr. West. I know something of the amount of work he does and the amount of energy he puts into that work.

Mr. E. ALFRED WEST: I thank the proposer and seconder very much for the kind words which have fallen from their lips, only I feel that I do not deserve

half of them. As your Honorary Treasurer, I am expected to be extravagant in nothing, not even in words (Laughter), and I will therefore confine myself to saying that I am very pleased to continue another year in office. (Applause).

General Secretary. Mr. H. J. DAWES: I have very great pleasure in proposing the re-election of Mr. Knight as General Secretary. No one knows more than I do the faithful way in which he carries out his work, and the ability he shows, and I am quite certain that it would be impossible for us to have a better General Secretary. (Hear, hear.)

Mr. E. ALFRED WEST: I should like to have the opportunity of seconding the re-election of Mr. Knight. I am in and out of the office a great deal, and I have much pleasure in testifying to the efficient way in which he carries out his duties. As I said at the Council Meeting last evening, I never valued youth so much as I have since I have been the Treasurer of the Association, and have had the benefit of the accurate and vigorous work carried out by Mr. Knight and his colleague.

Mr. F. KNIGHT returned thanks for his re-election as General Secretary.

Auditors. Mr. Douglas Wykes, of Messrs. Fairbairn, Wingfield and Wykes, was re-elected as Auditor to the Association, the President paying tribute to the manner in which the firm had promoted the interests of the Association by their handling of the Income Tax question (concerning sales of the *Record*) during the past year.

The PRESIDENT, continuing, said: I have to report to you that at the meeting of Council, held last night, Mr. Brown was re-appointed. The Council gave consideration to the designation of his post, and it came to the conclusion that the name "Assistant Editor" is sometimes lacking in weight when editorial information is required, and the attention of the Editor is requested, and the Council in their wisdom have decided that in future Mr. Brown's title shall be that of "Editorial Representative," which will carry with it more authority.

Mr. Langley has been re-appointed by the Council as Solicitor to the Association. I regret, as we all do, that Mr. Langley cannot be with us, owing to illness, but he is with us in spirit. He has written apologising for his absence, and among other apologies received is that of Dr. de Blieck and another from Professor Ciuca, who has sent his good wishes for a successful Congress. You will recall that last year, in Ireland, we had with us Dr. de Blieck, who gave us a paper which was read by all with great interest and enthusiasm, and he himself made his personality so marked and worked himself so much into the affections of all the members present that it was decided by the Council to make him an Honorary Associate of the Association. I have, therefore, very great pleasure indeed in proposing that Dr. de Blieck, of the Imperial Veterinary College of Utrecht, Holland, be elected an Honorary Associate of this Association. (Cheers.)

(*Continued at foot of next column.*)

The Veterinary Record.

8th October, 1927.

PROCEEDINGS OF CONGRESS.

This week and for two subsequent weeks the pages of the official organ of the National Veterinary Medical Association are chiefly devoted to the business of the recent Congress. That it takes three issues to record proceedings will convey an idea of the volume of work undertaken and accomplished. To those who were unable to attend, full opportunity is thus afforded to follow the interesting events and to peruse the valuable and instructive papers presented. Congress is made the occasion for ventilating subjects which are specially engaging veterinary science of the day, and discussions are intended to elicit all that is most progressive in practice and procedure. Publicity too, plays an important part in the furtherance of professional interest and common good. We may therefore appreciate the advantages of broadcasting and the help of the press in placing before the public matters which very nearly concern the welfare of our race and community.

More especially, perhaps, may attention be drawn to the importance of the President's remarks in relation to Public Health Services, which remarks cannot be too strongly emphasised. The veterinary surgeon has a rôle and a function in Public Health communal responsibility, which he alone can properly fill. Very rightly, as pointed out by the President, the person familiar with animal pathology and trained in the recognition of animal diseases during life, is in a pre-eminent position as the authority regarding soundness of animal products constituting the food of the community. Very gradually, but surely, this is being realised by Local Government bodies, and a veterinary side to Public Health Service is being evolved which is certain to carry its own success. Obviously, sound and wholesome animal products can only come from sound and healthy

(*Continued from previous column.*)

Professor F. T. G. HOBDAY: I have very much pleasure in seconding the proposal. Dr. de Blieck is well known all over the world and he is especially well known to us, as he came to us at our meeting last year. He is a man whose election would be a very great credit to the Association. (Cheers.)

The PRESIDENT: I can assure you, gentlemen, that in thus honouring Dr. de Blieck we are honouring ourselves. (Hear, hear.)

Proceeding, the President said: That concludes the business of the session, gentlemen, and I therefore declare the meeting adjourned till Friday morning.

NATIONAL VETERIN

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TORQUAY CONGRESS, SEPTEMBER, 1927.

MEDICAL ASSOCIATION OF GREAT BRITAIN AND IRELAN
TORQUAY CONGRESS, SEPTEMBER, 1927.

IRELAND.

animals: the conditions necessary to establish this fall within the sphere of veterinary services.

A very pleasing and gratifying honour to the Association was the lecture on the Prevention of Tuberculosis in Animals specially given by Sir John M'Fadyean, and the large audience assembled for the occasion was the best evidence of both professional and lay appreciation and sincerest gratefulness to him for the masterful exposition of a subject which few on earth can handle so well. We admire his master mind, and we will continue to hold him with affection in our hearts.

As will be observed from the papers and discussions, the problems of the general practitioner have not been lost sight of. New avenues of cause and effect have been explored, and new lines of treatment suggested. We may instance the advantages and suitability of a closer study of electro-therapy in its varied aspects, and of the more general use of X-rays in diagnosis and for surgical precision in our patients more prone to pica than human beings. The novelty and attractiveness of such treatment, apart from its acknowledged efficacy, lends itself to the unqualified in these advanced days of radiology and applied electricity, a circumstance which will require careful watching on the part of the practitioner and the veterinary profession generally.

In the close of one Congress we have thoughts for the next, preparations to be made, improvements to be effected, and so the useful circle goes on. In deciding on Newcastle-on-Tyne, at the other extreme of England, as it were, Northern members will have an easier opportunity of attending, and it is safe to say that the Congress of 1928 will equal in success that of 1927.

ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

In the Annual Report submitted to the Board of Governors of the Royal (Dick) Veterinary College, Edinburgh, figures are given which show that the post-war number of students has been well sustained. This may be due, in part, to the many attractive public veterinary appointments that have been made during the last few years and are still being made. Nevertheless, it is disturbing to note that, last year, the number of those entering the profession from all the veterinary schools of the kingdom barely balanced losses caused by death. This means that very soon there will be a serious shortage in the profession.

The development of the post-graduate side of the College continues to be very satisfactory, an increasing number of recent graduates availing themselves of the opportunity for specialised and advanced training.

During the year a generous donor has endowed a Scholarship, tenable for two years, in Chemistry and Physiological Chemistry. Similar scholarships in other subjects are very much desired. The following appointments to the College Staff have recently been made: Veterinary Jurisprudence, Norman Walker, B.A., LL.B.; House Surgeon, W. M. Mackay, M.R.C.V.S.; Clinical Assistant, W. L. Weipers, M.R.C.V.S., D.V.S.M.

THE PREVENTION OF TUBERCULOSIS IN ANIMALS.

By Sir John M'Fadyean, M.B., B.Sc., M.R.C.V.S., LL.D.

CONGRESS PUBLIC LECTURE AT TORQUAY.

There was a large attendance at the Torquay Town Hall on the occasion of the delivery, on the evening of Tuesday, September 13th, by Sir John M'Fadyean, M.B., B.Sc., M.R.C.V.S., LL.D., of the Congress Public Lecture, on "The Prevention of Tuberculosis in Animals."

Professor G. H. Wooldridge, President of the National Veterinary Medical Association of Great Britain and Ireland, occupied the Chair, and was supported on the platform by the officers of the Association.

The PRESIDENT, in introducing Sir John M'Fadyean, said: I would like, at the outset, to give you a very hearty welcome to this lecture to-night, to which we are to be treated by Sir John M'Fadyean on a subject which is of very great importance indeed to all concerned with agriculture, independently of its relationship, or possible relationship, to human disease.

I do not think it is at all necessary for me to give any preamble to the subject, but without further words to introduce to you Sir John M'Fadyean, who is so well-known to all of you. I think perhaps the best procedure will be to ask him straight away to address you on this subject of the prevention of tuberculosis. (Applause.)

Sir JOHN M'FADYEAN, who was received with loud and prolonged applause, said: I need hardly say that when the Council of the National Veterinary Medical Association asked me to give an address on the present occasion I felt highly honoured and that I am very pleased to be here to attempt it with my colleague and old pupil, Professor Wooldridge, in the Chair. (Applause.)

I had some little difficulty in choosing a subject, but not very much, because I very soon decided that no subject is of greater importance than tuberculosis. It owes its importance first to the extent to which it prevails, not only among farm animals, but also the human subject, and in the second place to the fact that it must, particularly, be regarded as incurable at the present time. These two characters, of course, give increased importance to the question of prevention, which is the subject of my lecture.

It is not quite so wide as the President said, because he said, "the prevention of tuberculosis," but it was my desire that it should be, as far as possible, limited to the prevention of tuberculosis in animals: that was deliberate, because it would not be possible to deal in any sense adequately with the subject in one lecture if one had to take account of the relationship between tuberculosis in animals and in man.

But before beginning the subject of the prevention of tuberculosis it is, I was going to say necessary—hardly necessary in an audience like this, but justifiable—to say a little about the cause of tuberculosis.

In the very narrowest sense of the word the cause of tuberculosis is the organism the name of which is familiar almost to the man in the street—the tubercle bacillus. But it differs from many diseases that are caused by bacteria and agrees with those that are purely contagious, and it is the very first point to be seized by the cattle owners, at any rate, that tuberculosis is a contagious disease and has no other origin. What is meant really by that is that any natural case of tuberculosis in an animal, or for that matter in man, is connected with a pre-existent case: the tubercle bacilli that have infected one individual must have come out of another victim of the disease, and that is not so with some other germ diseases. There are germ diseases that can arise without any connection with a pre-existent case: these are the germs that are able to live in the outer world—in soil or in water for instance—and when germs of that sort multiply round about us we may become infected without any contact with a diseased person.

But the tubercle bacillus is not able to multiply outside the living animal body. It is a point about which there was perhaps a little difference of opinion long ago. There is none at the present time. The tubercle bacillus does not grow outside the animal body except under the very special conditions that bacteriologists devise for the purpose of growing it in laboratories.

When one endeavours to describe how the disease is spread, there are two things of which one has to take particular note. It is the living infected animal that is a necessity for the manufacture of the tubercle bacillus, and one has to know, if one is to aim at prevention, first, what are the channels by which the bacilli leave the body and, secondly, how they get into the bodies of new victims. Some authorities within comparatively recent times have made use of the terms "closed" and "open" with regard to cases of tuberculosis, the expressions almost explaining themselves. What they mean is that when a case of tuberculosis has reached the stage at which tubercle bacilli are expelled from the body of the victim, then that is a case of open tuberculosis, and the contrary case is one of closed tuberculosis. In my view, it is a dangerous distinction, because it is impossible, it is practically impossible, when dealing either with human or animal patients while they are alive, to say that any case is a closed one if it is known that the man or animal is tuberculous. One has to admit that in many cases of tuberculosis shortly after infection the individual is not parting with any of the germs. They are growing in more or less sealed lesions; but then, one never knows when the disease passes on to that stage when the bacilli begin to escape from the body.

In the case of cattle, in my opinion, at any rate, and certainly in the human subject, it is by the expulsion of the material that is brought up from the diseased lungs that the disease is normally spread. Everyone is familiar with the expectorate which comes up so copiously in cases of human phthisis, and not infrequently similar material is given off in advanced cases of tuberculosis of cattle, but it is never so obvious, because in the animal, as a rule, a large proportion of that is arrested in the pharynx and is not expectorated, but in coughing there are always particles of liquid matter, finely divided, and containing the bacilli; which are projected into the air where the patient is. When I say "patient" I am figuring to myself a cow, for example, and these particles are dangerous because they probably become distributed throughout the air of the cowshed.

What is arrested in the throat of the animal and swallowed continues to be a source of danger because the bacilli therein pass through the stomach and along the alimentary canal and are expelled in the fæces, but not in a dead condition.

Another means by which, unfortunately, tubercle bacilli often leave the body of the animal is from the udder, and that, of course, derives its importance to a large extent from the fact that milk is a human diet; but it is also of great importance from the point of view of preventing the disease, because it is as dangerous for the calf as it is for the infant. Moreover, as everyone knows, in milking a part of the milk often escapes on to the floor of the cowshed and then these bacilli are also a source of danger. There are other channels of less importance. It should, however, be mentioned, that in a proportion of cases which is by no means insignificant the genital passages give exit to tuberculosis bacilli, the womb in cows being not infrequently diseased.

We come, in the next place, to see what are the channels by which these bacilli in infected premises gain access to fresh animals. One must, I think, again place the respiratory apparatus first. This also is a point about which there has been prolonged discussion, but, as I say, I think the evidence is strongly in favour of the view that in far more than half of the cases in cattle, infecting germs get drawn in with the air in the breath and thus, so to speak, come to rest in the lungs. The other route, which in some animals is actually the commonest one, is by the bacilli being swallowed; that is, in the second form of infection the tubercle bacilli are swallowed, with the food as a rule.

There are other methods of infection than these—methods which are of much less common occurrence, but there is one which I think deserves to be mentioned in this connection and that is what is often called inherited tuberculosis. The word inherited is capable of being interpreted in different senses, but one may say that a calf has inherited tuberculosis when the germs of the disease are in it at the time of birth. Within the period covered by my own memory it was very widely held that tuberculosis often originated in that way; that both cattle and human beings came into the world infected. Well, opinion is now practically unanimous against that view, and at any rate there is abundant evidence to show that that is not the case in cattle, for even in extensively tuberculous herds the number of calves infected at the time of birth probably does not exceed one per cent., and many of these are obviously unhealthy at the time of birth.

We turn next to what is the special subject with which I wish to deal, namely, the prevention of tuberculosis in cattle, and, partly for convenience to break the subject up, I will deal with that under different heads. The simplest case of prevention is that in which an owner possesses a herd that is free from tuberculosis. If this audience were entirely composed of cattle owners in any part of the country, I would venture to say that very few of them took an acute interest in the question as to how to keep a herd free from the disease, because, in my opinion, there is nothing more than an insignificant number of herds in this country that are free from the disease, the more is the pity. (Hear, hear.) If anyone doubts it, I will say (and I have just got the figures from the Ministry of Agriculture) that in spite of all the inducements that have been offered to those who keep cows for milk to obtain licences to sell milk from herds free from tuberculosis or tuberculin-tested, at the present time in England and Wales only 271 such licences have been granted—and it has got to be remembered that there are probably not less than 350,000 herds in England and Wales. But the question of the prevention of tuberculosis, for those who have free herds, is a comparatively simple one to be dealt with—by a lecturer at any rate—(laughter)—and that is to say that there is only one method of keeping it free—namely, to see that there never enters into the herd any animal from outside except on trustworthy evidence that it is free from tuberculosis. I think that can be accomplished at the present time, but it requires considerable care. It requires a period of quarantine and it requires testing with tuberculin.

Passing from that, there is the question (which is really the important one in connection with prevention), How may a man who owns an infected herd get rid of the disease? How may the disease be dealt with in such a case? It was Professor Bang—the most distinguished veterinary pathologist alive—whose name became well-known throughout the world, who first showed that it is possible to free even a badly-infected herd of cattle from tuberculosis, and it will be remembered that his original plan was to effect a separation, where nothing better was possible, by running up a partition on the farm premises or large cowsheds and, having tested the whole of the herd, to put the non-reacting animals in one half and the diseased ones in the other half. There were other precautions. He certainly advised that if there were not two sets of attendants to the two different lots of cattle, there should be very careful disinfection of the attendants who, after they had dealt with one of the herds, went to the other. But Bang very soon abandoned that plan, which was the original "Bang's method," and advised that the owner who desired to free the herd from disease should refrain from testing the cows at all; that he should set himself to get rid of the disease by building up a new herd, which was to be composed of the calves. One of his reasons, as he himself stated, for modifying his plan in this way, was that the farmer who had had his herd tested was often so disgusted and dismayed to find that such a large proportion of them were affected with tuberculosis that he decided that he would do nothing at all. In Bang's own experience the proportion of infected animals ran up sometimes to nearly 100 per cent. In substance the new methods associated with other people's names are very much the same, but what has sometimes been called the Norway method, introduced a good many years ago, departed from the strict Bang method in that the State was called in to help the individual farmer to get rid of the disease quickly. The test was carried out and the reacting animals were got rid of as quickly as possible with partial State compensation.

As I have already said, there is no evidence to show that these methods of dealing with the disease have met with any headway in this country and one has to ask, what is the reason for this apparent negligence? The answer appears to be that cattle owners do not see any adequate recompense for the trouble and loss, or expense, that is incurred in freeing a herd from tuberculosis, when the loss is not met in part by the State. One is compelled to think that that must be the explanation, because farmers are not behind any other class of the community in looking after their own interests and knowing about the management of their own business, and one may take it as certain that if the suggestions of this nature made to them are turned down, it is because they have reckoned up the costs against the advantages and decided that the advantages are not sufficient. It is true, or appears to be true—we may assume it to be true—that there are 271 herds in this country in which the owner has been supplied with veterinary evidence that his herd contains no tuberculous cattle, but it is as a pertinent question to ask, how was this result obtained, supposing that those herds were like the average of the country in which 30 per cent. of the cows would react and would be infected?

What one would like to suppose is that these animals were promptly, or without much loss of time, sent to the butcher, but where that is done immediately, or after a few months, that must mean a very serious loss of money, if, in a valuable dairy herd, the animals have to be sold for the purpose of the butcher. Remember that in most cases it is not possible for the farmer to keep them and prepare them for the butcher, because if the thing is to be effectual at all the separation after the test must be immediate and it must be permanent, and there is not one farm in a hundred in this country in which the facilities for such separation exist. It is only for those who are in a position, through having two different farms, to run two separate herds for the time being, that it is at all easy—and hardly then easy—to eradicate tuberculosis from an infected herd.

There is no question that eradication, when it has been obtained, carries with it considerable advantages. On the last occasion when this Association met in Devon this same subject was discussed and there was

a good deal of difference of opinion as to what was the saving that would be effected to individual owners and to the country as a whole if tuberculosis were eradicated. Some placed it very high and others thought it was exaggerated, but everyone knows that tuberculosis in cattle causes a certain amount of obvious loss, through the fact that the disease is sometimes fatal in a proportion of cases. But there is loss, one must admit, even apart from the animals that actually die, because tuberculosis, when it is not fatal, often tends to deteriorate the animal's condition and to reduce the yield of milk. Then there is the question of what would be saved in connection with meat that is at present condemned when the animal is killed and inspected.

I do not wish to conceal my opinion that the eradication of tuberculosis from herds affected to the extent of 30 per cent. is very difficult and scarcely to be undertaken by any considerable proportion of cattle owners, except with the help of the State. But it may be asked, is it not possible to do something, short of actual complete eradication, that it would be worth while attempting? The answer is "Yes." There has recently been shown difference of opinion as to what is the extent to which the cattle of this country are infected with tuberculosis, and I think it has been asserted (but without any evidence worth mentioning) that 50 per cent. of the cattle of this country are affected with tuberculosis. I consider that a great exaggeration, because we have reason to be thankful that the proportion of infected animals becomes smaller as you go down the scale of age. It is true, I am afraid, that the percentage of infection in dairy cows is not much less than 30 per cent., and there are cases in which one finds that the percentage runs over 50 per cent. and even cases in which you get a record that a farmer has actually been losing two, three, or four animals for years. I think a great deal of that is preventible without attempting complete eradication.

What I think deserves to be first impressed upon cattle owners—after the previous point I mentioned, namely, to impress upon them the fact that the disease is contagious and contagious only—is the further point, connected with that, that no animal that is obviously tuberculous should be left alive. (Applause.) I have stated long ago and I adhere to it, that the excessive loss which tuberculosis sometimes inflicts is due to neglect in that particular direction. (Hear, hear.) No one dare say that a single tubercle bacillus would not infect a man or an animal. There is little reason to suppose that such a small number ever operates, and there is no doubt that the course of the disease depends very largely upon the number of bacilli that cause the first infection. It is massive infection of the animals in the herd that produces what are called "clinical cases"; as we all know, the slaughterhouse discloses a large proportion of animals with comparatively insignificant lesions, though obviously lesions that have been a long time in existence, and that is the course which the disease happens to take (at least in dairy animals) when they are infected with a comparatively small dose of bacilli.

One can also advise that every difficulty should be put in the way of that transference of the germs from one animal to another that I mentioned at the outset of the lecture. There is giving them as much cubic space as possible, good ventilation, cleanliness, and so on; but, unfortunately, desirable cubic space, in many cases, demands new buildings and more expense.

Lastly, in this connection, there remains the question of eradication by State aid; that is to say, a serious attempt to free this country from bovine tuberculosis. I know there are very many members of the veterinary profession who think that that is a practicable step and that successive Governments in this country have been negligent in not putting the necessary machinery into motion. Well, I personally am not of that opinion, though very well aware of the fact that in some countries within recent years considerable progress has been made in the eradication of tuberculosis by the Draconian method of testing with tuberculin and promptly slaughtering, for the purpose of the butcher, the animals that react. But I think I am right in saying that no country or State has yet succeeded in freeing its cattle population from tuberculosis. Very wonderful progress has been made in Norway and Sweden, in Canada, and some parts of the United States of America, but there is a very great difference between the tuberculosis in those countries and in this. There are two important differences. The first is that in none of the former are nearly the whole of the herds infected. In Sweden it was found that over 30 per cent. of all the herds in the country, when tested, yielded no reacting animal and further, it was found, in all the countries I have mentioned, that the average number of animals infected was far smaller than it is here. In Sweden and Norway I believe it was about 8 per cent. as against 30 per cent., and in many of the areas where the method has been tried in the U.S.A., the percentage was still lower than that.

I have only left a few minutes in which to deal with the point of my lecture to which I attach most importportance, and that is the new suggestion as to how cattle and also human tuberculosis can be dealt with. It is, for convenience at any rate, associated with the name of the distinguished continental bacteriologist, Calmette. He has recently put before the medical and the veterinary world the suggestion that the disease should be attacked by a method of vaccination, to be applied to infants newly-born and, in connection with animals, to calves as soon after birth as possible and not later than one month after birth. What is essential for the purpose is an artificial culture of tubercle bacilli. It was originally a virulent bovine strain of tubercle bacilli and, after culture for sixteen years in a laboratory, under conditions not favourable for growth, the bacilli gradually diminished in virulence, until the authors (there were three very distinguished men associated with the work) were able to show that the bacilli could be injected in large doses into susceptible animals, including chimpanzees, the latter to provide evidence of the safety of the vaccine for human beings. The results indicated that there was no dan-

ger in inoculating animals or feeding infants or children with this material. It is only in the course of the present year that detailed evidence of what can be achieved in this way has been forthcoming and I shall endeavour in a few sentences to state what the result has been. A particular French farm was put at the service of Dr. Calmette (and his co-workers) to try the method, and this herd was a very suitable one for the purpose. It was a dairy herd, including, altogether, about sixty animals. It was a self-contained herd; that is, the heifers were reared mainly on the farm, and the inducement held out to the owner was this:—"If you will allow your calves to be vaccinated after birth, or before they become infected, they will be immune within three weeks' time. They will have an immunity that will enable them completely to resist infection when standing in and forming part of this highly-infected herd. The immunity will not be permanent; it will therefore be necessary to re-vaccinate, probably once a year, so that the first calves will all be vaccinated, also your previous year's calves will be vaccinated again, and so on." And it was said to the owner: "If you will do this you can obviously replace your herd within five or six years, because by that time the un-vaccinated cows that you started with will have been got rid of in the natural course of events, and it will not be necessary for you to practice disinfection or any separation, and the thing will be comparatively inexpensive." On this particular farm the first inoculation of the calves was made in 1921 and at that time the total of the herd was about sixty-four animals; it included a large number of cows that had been condemned in consequence of reaction to tuberculin, but these were all to be left in the herd, at any rate as long as the owner did not wish to put them out for the usual reasons—that they were too old, or not good milkers.

It is of the essence of the scheme that one must not attempt to give immunity to animals that are known to be infected, or vaccinate animals that are more than a month old. Immunity is only obtained if the animals are vaccinated before they are infected. On January 1st, 1927, there were sixty-nine animals in the herd, or five more than there were before the vaccination was begun. There remained only eleven of the original herd and it was known that at least one of these was tuberculous. What had happened during that period of six years was that, apparently in consequence of the vaccination, no single animal born in the herd contracted tuberculosis.

Naturally you will ask, "What is the proof of this?" It is not furnished by the tuberculin test, because that cannot be carried out while the process of eliminating tuberculosis is going on, since the vaccination is a genuine infection and while the bacilli are present in the body the animals will react to the test.

During this period of six years thirty of the animals bred in this herd and vaccinated as calves went to the butcher as steers and were all submitted to *post-mortem* examination at an abattoir, and not one of them was found to be infected.

During the same time, among the original cows and other animals in the herd that went to the butcher, ten were found to be infected and most of them extensively.

In this experiment there were no control calves left unvaccinated, but one must admit that that was hardly necessary because, be it remembered, no attempt was made to prevent the infection passing from the original members of the herd infected to the extent of 47 per cent. before the experiment began; nothing was done to prevent the disease spreading from these to the vaccinated animals at any time during the six years.

Calmette and his co-workers deserve very great credit in connection with this because they produced their evidence, they laid the whole of their cards on the table, they have offered to supply the vaccine in any reasonable amount to the Government of any country, in order that it may be tried to see whether the results pan out as they did in this French herd. (Applause.)

In this country the vaccine has already been supplied, I understand, to the Ministry of Agriculture and I think it is very desirable that the method should be tried on a considerable number of cases. If results of that kind can be obtained in ten similar herds, nobody will doubt that a method of dealing with tuberculosis that is better than anything hitherto recommended has been discovered. (Loud applause.)

The CHAIRMAN: I am quite sure that you will all agree with me that we owe to Sir John M'Fadyean a very deep debt of gratitude for coming down to us to-day, at, as I know, some considerable sacrifice of his personal convenience and health, in order to give us this lecture. (Applause.) I have a deep feeling of gratitude, too, and I should be very ungrateful if I did not, when I know, as was suggested by Sir John M'Fadyean at the commencement of his lecture, that one reason he had for coming was to support me here in my year of office with the National Veterinary Medical Association. (Applause.) I have worked, as you know, under the leadership of Sir John for a matter of twenty years and now that that link is about to be broken I can assure you that I, for one, feel it very deeply. I am, moreover, I am sure, expressing the feelings of everybody here and of every member of our profession when I voice the hope that in his pending retirement he will be long spared to enjoy the rest that he has so well earned. (Applause.)

I am particularly proud too—and I am quite sure the members of this Association are—that what must be virtually his last public appearance as Principal of the Royal Veterinary College—because, as you know, his retirement takes place at the end of this month—should have been in support of this Association and the work which our profession has to do in the great task of the reduction of tuberculosis. (Hear, hear.)

Undoubtedly, the scheme which he has summarised as having been originated largely by Calmette offers to us a far greater prospect of hope than we have ever had before in connection with this problem. We

have felt that the enormous expense that would be entailed in any attempt to eradicate the disease was quite an impossible expense, and that expense would be justified and was justified in attempts to control it, but we have felt at the same time that there was little hope of exterminating it under present conditions.

The method of treatment which has now been outlined to us does offer very strong hope that in the course of a few years, at any rate, if the system proves on subsequent investigation to have the same results as have been afforded in the original experiments, we may see tuberculosis not only rapidly dwindling, but also rapidly becoming exterminated.

I would ask you one and all to offer to Sir John M'Fadyean not only your grateful thanks for coming down on our behalf and for the excellent address which he had given us, but also your sincere hope that he may be long spared, with Lady M'Fadyean, whom to know is but to love, many years in his well-earned rest. (Loud applause.)

Sir JOHN M'FADYEAN, who was accorded a memorable ovation on rising to respond, said: I do not feel that I can adequately express how grateful I am to our President for what he was good enough to say and the good wishes he expressed for me in my retirement, and to you for the exceedingly warm way in which you have received me.

It is not a very happy time, in every respect, to which I am looking forward. In the natural course of things I shall be cut off from the work in which I have been engaged all my life, but it certainly will cheer me to think that I carry with me the good wishes of so many members of my own profession. (Hear, hear.)

I would like to say that there was a certain piquancy about my coming here to-day, because it is the second occasion upon which I have had to speak on tuberculosis to a veterinary audience in the County of Devon, and the former occasion was when the Association met in Plymouth in 1899, and my friend and also former pupil, Mr. Dunstan, read a paper on this same subject, and I had the honour of opening the discussion. I do not think that I read the account of that meeting until about a week ago, when I thought it well to see what was said on that occasion. I found that in the discussion one of the speakers said that I had alluded to the difficulties of stamping out tuberculosis in this country. In his view there were only three: one of them was the Government of the day, the second was the Royal Agricultural Society, and the third was Professor M'Fadyean. (Laughter and applause.)

THE MODEL ABATTOIR SOCIETY.

The Benjamin Ward Richardson Memorial Lecture, which is delivered annually in connection with the Model Abattoir Society, will be given by Lieut.-Colonel Gerald Leighton, O.B.E., M.D., F.R.S.E., Medical Officer (Foods) Scottish Board of Health, in the Lecture Hall of the Royal Sanitary Institute, 90 Buckingham Palace Road, on Thursday, November 10th, at 5-30 p.m.

The subject of the lecture will be "The Modern Abattoir and its Place in Public Health Administration."

The chair will be taken by Sir James Crichton-Browne, M.D., LL.D., F.R.S., President of the Society.

The lecture will be open to the public free of charge.

THE SOCIAL FUNCTIONS.

This section of our report deals with those manifestations of good fellowship which will invest memories of the Torquay Congress with more vivid outlines than can even the impressiveness of the ceremonial occasions or the uniform excellence of the scientific contributions.

The choice of a pleasure city as the place of meeting involved the tacit acceptance of an obligation to achieve something of a "record" in social enjoyment this year, and none present could withhold witness that it was handsomely fulfilled. The weather almost did its worst, but the programme proved equal to all emergencies demanding the alternative provision of shelter for the open air, and one and all were made to feel that they were essential and welcome members of a company of "National" enthusiasts.

A series of highly-successful receptions at the outset played their important part in the vital pursuit of "getting into touch" and the ladies were at once made to feel their integral place in the official scheme of things by participating in the "At Home" so thoughtfully arranged by Mrs. Wooldridge on the evening of the first day.

Unfortunately the weather conditions on the Tuesday afternoon did not permit of the holding of the garden party which had been arranged by the Mayor and Mayoress. Members, their wives and friends were therefore entertained in the Pavilion to music provided by the band of the 43rd Oxford and Bucks. Light Infantry, after which tea was taken. In responding to the vote of thanks, which was proposed by the President, the Mayor of Torquay caused great laughter by saying that he had never had any compunction in swopping a tea for a good dinner and, since he believed he was to have the honour of being the guest of the National Medical Veterinary Association at their annual banquet on Wednesday evening, he would say no more.

The following were present: Professor G. H. Wooldridge, Mr. and Mrs. J. W. McIntosh, Mr. and Mrs. MacDougall and party, Mr., Mrs. and Miss Brooke, Miss Taylor, Mr. and Mrs. Forsyth and Miss Forsyth, Mr. W. Noar, Miss Kitsell, Mr. and Mrs. Holroyd, Master and Miss Holroyd, Captain and Mrs. H. C. Rockett, Captain and Mrs. T. W. Lloyd, Mr. and Mrs. Conchie, Mr. and Mrs. A. C. Ward, Mr. and Mrs. F. W. Willett, Major and Mrs. Hobson, Mr. and Mrs. Bywater, Professor and Mrs. J. F. Craig, Mr. and Mrs. W. G. Blackwell, Mr. and Mrs. J. Dunstan, Mr. and Mrs. R. C. L. Penhale, Captain J. Fox and Mrs. Fox, Mr. and Mrs. Brennan de Vine, Mr. J. R. Barker, Mr. F. Chambers, Mr. W. S. Stevens, Mr. and Mrs. J. L. Cormack, Mr. and the Misses Parsonage, Captain and Mrs. Dunlop Martin, Mr. and Mrs. Masson, Miss Aitken, Dr. and Mrs. Jackson, Mr. and Mrs. G. H. Locke, Mr. S. Slocock, Mr. G. B. Brook, Mr., Mrs. and Miss Lansley, Mr. W. Harris, Mr. S. C. J. Bennett, Miss Bower, Mr. W. D. John, Mr. and Mrs. A. J. Cattell, Mr. and Mrs. W. W. Lang, Mr. and Mrs. C. J. Thorburn, Mr. H. G. Bower, Mr. W. Lyle Stewart,

Mr. R. Hudson, Captain and Mrs. W. K. Townson, Mr. and Mrs. Digby Watkins, Mr. and Mrs. S. C. Hill, Mr. J. Campbell Carter, Mr. O. V. Gunning, Mr. W. R. Williams, Mr. W. D. Rees, Mr. E. C. Bovett, Mr. and Mrs. J. H. Taylor. Mrs. Barker, Mr. R. F. Montgomerie, Mr. T. Dalling, Mr. and Mrs. J. H. Mason, Mr. and Mrs. J. W. Rider, Mr. K. D. Downham, Mr. and Mrs. F. Healey, Miss Dicken, Mr. and Mrs. Hugh Begg, Miss Owen, Mr. and Mrs. H. Tudor Hughes, Mr. J. Martin, Mr. M. T. Giblin, Major F. T. G. Hobday, Mr. Horace L. Roberts, Mr. Wm. Roach, Mr. W. A. Pool, Mr. and Mrs. W. Stableforth, Mr. C. H. Huish, Mr. and Mrs. Wm. Woods, Mr. and Mrs. T. Wilkinson, Mr. and Mrs. P. W. Bloye, Mr. and Mrs. H. S. Cockburn, Mr. H. C. J. Kelly, Mr. and Mrs. G. R. Simpson, Mr. and Mrs. J. F. Dolan, Mr. and Mrs. F. T. Trewin, Mr. and Mrs. Herbert King, Captain R. J. Stow, Mr. R. Simpson, Captain J. F. Macdonald, Mr. W. M. Mitchell, Mr. S. K. Munro, Mr. and Mrs. G. P. Male, Mr. Knight, Mr. Wm. Brown, Mr. and Mrs. Perry, Mrs. Hudson and many others.

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It was a tribute to the affection in which the retiring President and Mrs. Wooldridge are held by the members that there was an overflowing attendance at the delightful reception, followed by a dance, held by the President at the Torbay Hotel on Tuesday evening. Many pleasant attractions were provided by the kindness of Professor Wooldridge and the occasion proved, as it was meant to do, a splendid opportunity for the renewal of old friendships and the cultivation of new.

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The Annual Banquet.

The Annual Banquet, which was held in the Torquay Town Hall on the Wednesday evening, was a brilliant function, and was preceded by a reception held by Professor and Mrs. G. H. Wooldridge. The guests included the Mayor of Torquay (Mr. F. J. Marnham), the Deputy Mayor (Mr. E. H. Sermon), Alderman W. Coysh and Councillors Godbeer and Wright.

The toasts to His Majesty, the Queen, the Prince of Wales and the Royal Family having been duly honoured, "The Borough of Torquay" was proposed by Dr. O. CHARNOCK BRADLEY, M.D., D.Sc., Ch.B. (Edinburgh), who said: I need hardly say that I regard it as a very high privilege indeed to propose the toast of the Borough of Torquay, and I realise that the privilege carries with it a very considerable responsibility. I have a very vivid memory of how keen we all were to accept this corner of England as the place at which to hold our Congress this year. There were many reasons why we accepted with such greediness your gracious invitation to come to this particular part of England, which, from our very earliest times has had a history of romance. This wonderful county in which we have met to-day I am going to refrain from calling "glorious" for two or three reasons. I am going to refrain from doing so, firstly, simply because that description of Devon has been worn threadbare, and secondly, because it is a totally inadequate description. Devon has always appealed to everybody. (Hear, hear.) There is not a man or woman in this room who has not been excited, stimulated, thrilled by the story of the high adventure and dangerous roving lives of the old sea dogs. I suppose none of us has escaped the thrall of such names as Walter Raleigh and Francis Drake. Is not Walter Raleigh the pattern every boy wishes he could imitate? Has not his example led every boy to imagine that he too must cast a cloak at the feet of every wondrous woman? The historians of to-day are too hard-hearted and scientific and tell us those things never happened, but I should think every boy to-day would prefer that they did. (Hear, hear.) In some respects at any rate, Walter Raleigh was not unlike a member of the veterinary profession. Did not Spenser call him "the shepherd of the sea"? Was he not always in want of money? (Laughter.) Have we not some such dreams and aspirations as Raleigh had, and, alack, does it not generally turn out that our dreams meet with the same fulfilment as did his? Was he not more or less of a medical man in that he sought for some wonderful stimulant, and are we not all seeking for something of the same kind? Anyway, without pressing the point of Raleigh being like a veterinary surgeon in many respects, we can claim that it is our good fortune to be allowed for a time to inhabit the same quarter of the earth that he lived in.

I think it is quite conceivable that if prehistoric man lived in Torquay, as we are told that he did, he held veterinary congresses also—and I defy anyone to prove that he did not—(laughter)—and moreover he held them in Kent's Cavern, otherwise his deliberations would have been liable to interruption by animals like the mammoth, cave bear, rhinocerous, the lion and the tiger. (Laughter.) Of course it is quite possible that some of our meetings have had lions in them, or possibly even a bear or two—(renewed laughter)—but I do not think we have any present now. Supposing the profession had held its meetings in Roman days. They would have to have been conducted according to the strict observance of rule of thumb. The meetings might have been held on the occasion of the arrival of Don Pedro into Torbay, or perhaps even of William of Orange.

But I must remind myself that the toast is that of the Borough of Torquay. If ever it should happen to be the privilege of anybody else in this room to have to propose this toast, let me warn him that if he goes to a friend for sympathy he will not get it. He will simply be told that Torquay is such a beautiful spot and that its inhabitants are so charming that the success of the toast is assured even before it is proposed. If you have to couple with your toast that of an outstanding personality you will be told that all you have to propose is Torquay and its Mayor and the thing is finished. Now I am quite sure it is absolutely unnecessary for me to say anything about this extremely beautiful borough in which we are privileged to meet during this week. You will all have seen it and have observed the natural beauties of the wonderful

cliffs, the colours, the sea and the other main beauties of this place. The borough is said to extend over five square miles, but I absolutely decline to believe that anything is square in Torquay.

We have met here for the purpose of carrying out more than one thing. If I might poach on the motto of the borough I would say that we are here for "Res veterinas, salus et felicitas." That we shall get good profit by "res veterinas" I admit. That we have benefited under the heading "salus" no one will deny, and I know I am only merely echoing your experiences, when I say that we are all richly profiting by "felicitas." The motto of the borough having given one the opportunity of posing as a profound Latinist, may I conclude by suggesting that the borough's motto be amended by the addition of the words "floruit, floreat, floruitque semper." (Loud applause.)

In rising to respond, the MAYOR OF TORQUAY (Mr. F. J. Marnham), who was greeted with loud and prolonged cheers, said: First of all will you allow me to thank Dr. Charnock Bradley for the kind things he had just said about Torquay and also its Mayor. I understand that for the last few years you have gone to the university cities to hold your Congresses. Of course Torquay is only a town of yesterday. We are not much more than 100 years old, although Torbay does figure in English history for hundreds of years, as a matter of fact. I believe Dartmouth has sent out ships on voyages of discovery, adventure and commerce for centuries past, but our knowledge of Torquay as a place of any importance really dates from the time when Napoleon came, and from that date the town has steadily grown until now we have a population of over 40,000 inhabitants.

Although the weather has been against you, there have been some bright spells and I sincerely hope you have profited and benefited by your brief sojourn with us. The ladies, Mr. President, have certainly not acted as truants. I hope you will long remember your stay with us. I think these annual conferences or congresses do us all a lot of good, do they not? (Hear, hear.) When you go back to your homes I hope you will tell all your friends that you saw enough on sea, on river, on moor and on coast to make you want to come to Torquay again, and if you do I can assure you we shall all do as much as possible to make you as happy as we can. Torquay has a big residential population and many of them came here sixteen years ago to end their days in peace and quietness—(laughter)—and although I hope you all have many years of life before you, I hope also that you will make up your minds to visit Torquay again. (Applause.)

The DEPUTY MAYOR (Alderman E. H. Sermon) who proposed the toast of "The National Veterinary Medical Association, said: It is a very great privilege to be asked to propose the toast of the evening. I cannot understand why it has fallen to my lot, although it was my privilege during my year of office as Mayor of this Borough to send an invitation to your Association. (Applause.) At any rate, I am delighted that you have found it possible to come to our beautiful borough, Mr. President.

I am very pleased to be allowed to propose this toast and congratulate all those present and this Association as a body on the very excellent work it is doing and has done and also on the membership that you have. I am a strong association man myself, and having been president of my trade association I know that it is not the enthusiasm of the few that is the chief point, but the enthusiasm of the many. You have a very great proportion of the members of your profession who are members of your Association. When I note that it was in 1883 that you held your first annual congress, I feel that I must congratulate you on the progress you have made. I believe I am right in saying that at this Congress you have some Colonial delegates present and a gentleman from the United States of America. That is all to the good. Most sincerely do I wish that that affiliation may go on increasing and that your Association may continue growing stronger and stronger.

When I read in your report of the tremendous amount of work which your President is doing I began to wonder if he ever found time to sleep. (Laughter.) I am quite certain that you, gentlemen, and your Association are very much indebted to him for what he has done. In a day or two he will be retiring from the presidency, but I know he will be carrying with him the good wishes of the Association. Everybody must realise that he has given of his best to the Association and I am only going to say that it is going to be a very difficult matter for anyone to follow in his footsteps. (Hear, hear.)

In your Annual Report I notice that you give a great deal of attention to the inspection of meat and food. I would remind you that you are in a borough that was the first to take this into consideration, and we were also the first to appoint a qualified man for that purpose. We did this in 1908. Not only is meat inspected in Torquay, but because of a clause we put in the Corporation of Torquay Act of 1923, we also have the power to inspect food in every boarding house, restaurant or hotel. That is very important in a borough like ours. We pay the very strictest attention also to our milk supply, which is under the direct control of our Medical Officer of Health. In your colleague, Mr. Masson, we have an expert who looks after all our cattle and livestock. (Applause.) We have a Medical Officer of Health, Chief Sanitary Inspector, three District Inspectors, a Veterinary Inspector and Mr. Masson. (Applause.) It is our intention, ladies and gentlemen, not only to do the best we can now, but to continue doing the best we can. Ladies and gentlemen I ask you to rise and drink to the health of your Association, coupling with it the name of your worthy President. (Loud and prolonged applause, the toast being drunk to musical honours.)

On rising to reply, the PRESIDENT (Professor G. H. Wooldridge, London) was received with cheers. He said: I hardly know how to respond to the terms of praise which I have just had to listen to from your Deputy Mayor. I must conclude one of two things:

either he has a very vivid imagination or I have a habit of introspection, but I know that I have not merited a quarter of the eulogiums that he has put upon me. I am particularly gratified at the reception you gave to this toast—that of the toast of the Association. It rather reminded me of the old Scottish toast, "Here's to ourselves." (Laughter.)

It is hardly necessary for me to enlarge upon the work of the Association, but I would take the opportunity of confirming the statements made by the proposer of the toast with regard to the excellence of numbers of the members of the Association, and the comparison in proportion to the members of the profession in this country who see the advantage of belonging to it.

I must refer to the very great pleasure it has given us individually and collectively to be here in Torquay, and I can assure his worship the Mayor that most of us will want to come back again and indeed I am sure that most of us will come back again. (Hear, hear.)

Now, I must confess that I had a very great disappointment yesterday evening. We thought we might be able to do something for the agricultural community of this area, and on this occasion we had something further in view than a mere public attraction. We got Sir John M'Fadyean to come here and give us a lecture on "The Prevention of Tuberculosis in Animals." Invitations were extended to the agriculturists all over Devon and to the various medical authorities, because it was thought that in the former category at least we should have a very good response. You may judge how great my disappointment was when I observed the small audience that took the trouble to come. Apparently the farmers want a little more than spoon feeding, but I cannot help feeling that they have made a very great mistake in not taking advantage of hearing what we offered them in the very excellent lecture which Sir John M'Fadyean delivered. (Hear, hear.)

With regard to the references to myself and the work I have done during my year of office as your President, I admit that it certainly has been an arduous time, but it has been a labour of love nevertheless, and I do not regret one minute of the time that I have spent on it. Not one minute. The only thing that I do regret about it is that my term is coming to an end.

PRESENTATION TO MR. R. B. NELDER.

The success of the Association can only be carried on and attained through the assistance of the officers of the Association and I cannot pass away from this point without according to them, one and all, our cordial appreciation of the work they have done during the past year. I refer not only to the permanent officials, but to the temporary officials also, and to our Local Committee, who have given the greatest attention and gone into all the details and provided for our very successful Congress this week. Presided over by Mr. Masson, who was Chairman of the Committee, we see the fruits of their labours now. But even Mr. Masson and his Local Committee would not have been able to do what they have done unless they had been supported by a very energetic Local Secretary. (Hear, hear and applause.) It is only due that our thanks, our very cordial thanks, be accorded to Mr. Nelder. He has very nearly solved the great problem of being in about a dozen places at one and the same time. (Laughter.) The members of the Association are desirous of marking their great appreciation of Mr. Nelder's services and I would ask him to come forward so that I, on behalf of the Association, may ask him if he would accept some slight token of the regard that is felt by us all for the work that he has done for us. Whenever you call at Exeter in future and you go to see Mr. Nelder you may be sure of being given a good cigar at any rate. (Laughter.) We are giving him this silver cigar box to keep his cigars in good condition pending our arrival, and in case we cannot go to see him and we are expecting him to come and see us we are providing him with this silver cigarette case. (Mr. Nelder was then presented by the President with the gifts mentioned, amidst the great applause of the assembly.) Concluding, Professor Wooldridge said: It now only remains for me to thank you for the very cordial reception you have given to the toast. (Prolonged applause.)

Mr. R. BARONS NELDER: I cannot really express my thanks for these magnificent presents you have given me. The work of organising this Congress has been a great pleasure to me. I have enjoyed every moment of it and I am sure I shall always bear in mind your kindness to me this evening. (Applause.)

The toast of "The Royal College of Veterinary Surgeons" was then proposed by Mr. WILLIAM WOODS, who said: You will be relieved to hear that until I came into this room I had no idea I was to propose this toast, and therefore I had no time to prepare a speech. They say that every body receives that government which it deserves. If that be the case we can congratulate ourselves upon being a very learned body of veterinary surgeons. Perhaps it is because our Council of the Royal College of Veterinary Surgeons is elected by the whole profession. It consists of thirty-two members and they are elected every four years and that College of Veterinary Surgeons is the governing body. I have had a close connection with it for at least thirty years and during that time we have made continual progress. (Applause.) We are very proud of our College—of our governing body—and it is worthy of remark that the services of the members of the governing body are given services and I am sure that given services are the best, for wherever services are given freely you find they are the best, although, to be sure, we do get some kicks. (Laughter.) I have great pleasure in proposing the toast standing against my name, although, as I said before, I have had no time to prepare anything in the nature of a speech.

In reply, Mr. S. H. SLOCOCK said: I have the honour to reply to this toast which has been so ably proposed by Mr. Woods. The toast is a somewhat difficult one to which to respond. You have heard it already from three or four speakers—it is the toast of "ourselves," and our President has told you that we have toasted

ourselves once and now it seems that we are doing so again. It has been said that veterinary surgeons are not in a very prosperous way, but I do not think we look like a starving lot. (Laughter.) Things in the veterinary world, as in the agricultural world, have always been bad and always will be bad. (Laughter.) Personally, I think things are always looking up for the veterinary profession. It is just over one hundred years since railways came into being in this country, and ever since that time the horse has been going into a decline, as there have been many other things that have declined. We ourselves have been steadily doing so, we are told, and yet throughout the veterinary profession to-day we notice a great field open to the veterinary surgeon who specialises.

Of the Council I can truly say that you have a body of men who are putting the very best of their interests and intellects at the service of the profession. (Applause.) They have in mind the duty of providing the State with a sufficient number of young veterinary surgeons who are capable of filling positions in both State and municipality. Difficulties may and do arise from time to time in turning out students who are fully equipped, but I think that if more general practitioners would gain more insight to their students they would be lending a very good hand. The Council, I hope, will not only maintain, but elevate, the standard required before those students become members of our body. The Council will continue to do the very best work possible. Mr. Woods has told you that the Council is elected by the whole profession. He is not quite correct. We wish that a bigger percentage of members of the profession would elect the Council.

We have many duties, and there are times when we have had very low funds, but the profession came forward with their guinea a year and we are now able to pay our way and to do a great many things that we could not do before, when I joined some eighteen or twenty years ago. We hope that those members who have not yet done so will pay a visit to 10 Red Lion Square; there we have the home of the profession. It remains for us to pull together individually and then we shall all pull together collectively. Small as we are, we are a very happy little democratic body, and I am pleased to say that we have always existed of ourselves and by ourselves and have never yet received State aid. (Applause.)

Mr. G. P. Male: I rise to propose the toast of "Success to Agriculture," and feel that I am on safe ground in addressing a body of veterinary surgeons on that subject, for in us the farmer has his double in grumbling. On the other hand, who would not grumble in a season like that we have just passed through, even if he lived in Torquay? We are told that agriculture is dead. If this is to be the funeral oration I should like to take upon me the cloak of Mark Anthony to-night, because I firmly refuse to believe that this great industry, so important to our country, will be allowed to decline, or that agriculturists are wanting in intelligence and efficiency. I would point to the evidence of the South African farmers who, a short time ago, visited this country, and who, although they had travelled all over the continent of Europe, were very impressed with the great strides agriculture had made in this country during the last few years. Unfortunately, agriculture has been the cinderella of politics. The wicked sisters are doing their worst and the farmers are having a bad time, but whether Mr. Baldwin will appear as the fairy godmother or whether Prince Charming will turn out in the form of Mr. Winston Churchill, time alone will show. At any rate, I believe that agriculture will, in a very short time, come into its own. In some respects agriculturists, like the members of our own profession, are overworkedand underpaid, or they think they are, and they think they do not get that appreciation they ought to get from the general public. I hope that next time the veterinary surgeons came to Torquay there will be more reason to welcome them because by that time I hope they will have eradicated tuberculosis from the county of Devon. You have a most wonderful climate, a veterinary service second to none, and a market for the supply of Grade "A" milk at your doors. The veterinary profession was never more enthusiastic to help in the good work of not only eradicating tuberculosis, but every other disease that affects cattle in this country. (Applause.)

Colonel D. R. Edwards Ker, C.B.E., M.A., B.Sc., Principal, Seale Hayne Agricultural College, in response, said: I rise to welcome very heartily and respond to the toast of Agriculture, because it gives me the opportunity of refuting something that was said by your President. You said, Sir, that you regretted that there was such a meagre attendance at the lecture by Sir John M'Fadyean on "The Prevention of Tuberculosis in Animals," but the truth is that the farmers did not have sufficient warning and therefore could not be present. If the local farmers had had a longer warning that the address was to have been given, you would have had a better attendance. I do not want a wrong impression to go abroad, and those gentlemen in this hall who are farmers will agree with what I say. I do not think Devonshire farmers are at all backward in coming forward. Agriculture is in the slough of despair at the moment, as Mr. Male has remarked, but it is only passing through a stage of transition, and I think it will emerge from that stage very soon. Farmers are having to face a tremendous amount of opposition in everything except fresh milk, and when they have adjusted their methods everything will come right. One of the chief, one of the most important ways in which British agriculture can be revived is by education. My father always told me this: "If ever you are ill, my boy, send for the vet."—(loud laughter)—that, I think was the greatest compliment that has ever been paid to the veterinary profession. (Applause.)

Mr. William Brown, B.Sc. (Aberdeen), in proposing the toast of "Ladies and Guests," said: I do not know why one who hails from so far away from Land's End as John o' Groats should have been called upon to propose this important toast. The real, I suppose, and only reason must be that he should be considered to be a ladies' man. (A voice, "hear, hear.") I would

like, as a bachelor, to respond to this toast, but may I say that I am not like most bachelors who say they can trace all evil things to woman. Those men go all the way back to the Garden of Eden and say that that is where the trouble began, for that is where woman was created out of a man's rib, man having been put to sleep, which sleep, by the way, was absolutely his last repose. (Loud laughter.) Now if there were anything wrong with the ladies how could they possibly be blamed for being created from the crooked bone taken from a man's body? (Laughter.) We are told that our first parents' favourite son was killed by Cain with a club. To-day it is usually the clubs that kill the favourite sons. (Renewed laughter.)

Now our "National" meetings would be entirely shortened and shorn of all their glories if we had not the ladies with us. Their presence is essential to the success of our meetings, and further, since it is no sinecure to be the wife of a veterinary surgeon, the ladies are as deserving of a holiday as their husbands and I hope they will have enjoyed their short stay in Torquay and will have had a very happy holiday. Ladies, if it be a case of love at first sight, then let me assure you that the affections of all the gentlemen here are showered upon you.

I do not know why "the guests" were included with "the ladies," and I do not know quite how to bridge over that. It requires some sort of introduction. Anyway the ladies have met the guests and the guests have met the ladies.

There are three guests here whom I would like to mention. There is Dr. Juan Richelet, who is attached to that great country, Argentina, and whose chief duties are to see to the conditions of the meat that comes from Argentina, and indeed we need it, because we cannot produce sufficient cattle ourselves. He has another duty and that is to tell people where to go and buy the best cattle. We offer Dr. Richelet a very cordial and hearty welcome. We send representatives over to Buenos Aires to judge our stock and we know that they always receive every hospitality and every courtesy, and I hope you will understand that we are simply trying to reciprocate.

Dr. Tuck, from the great United States of America is with us also.

Thirdly and lastly, we extend a very hearty welcome to Captain Ross Grant, from Australia, that great Dominion of Empire which supported us in the Great War. In a word, ladies and gentlemen, I ask you to charge your glasses twice, to drink to the ladies first—and that most heartedly—and then to our guests.

Captain Ross Grant, who on rising to respond, received an ovation, said: It is indeed a very great privilege for me to be allowed to respond to this toast. So far as the ladies are concerned, it is the most important toast of the evening. I do most certainly feel sincerely grateful for all your kindness, and know that all the ladies and other guests feel the same. We could not have had a better time in Torquay. This is my first, and unfortunately it may be my last visit to the "National," but I have enjoyed every moment of it, and in addition to enjoying my stay in Torquay, I have also imbibed a great deal of very useful knowledge. In Australia our numbers are few, and distances are very great. You must bear in mind that we only have 6,000,000 people in a country as large as the United States of America, so that although we have a Veterinary Association it is very difficult indeed to get all our members together. This Congress has been a revelation to me. I only wish I could stay in the Old Country longer, for you know in Australia we always look upon England as "Home." When I had my first leave during the war I felt a thrill when I got out of the train at Edinburgh for that was my father's native place. I do not believe people in the Old Country realise how we feel towards England, but I would like to say this: that if we had another world war the response from Australia would be as great as before. (Applause.) On behalf of "The Ladies and Guests," thank you. We have all had a very excellent time in Torquay. (Prolonged applause.)

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Visit to Harcombe, Chudleigh.

Members hurried away after the conclusion of the operations on Thursday afternoon to take part in the trip to Harcombe, near Chudleigh, the beautiful home of Lady Wills, widow of the late Sir Edward Channing Wills. A tremendous downpour accompanied the departure of the party from Torquay, but any discomfort in getting to Harcombe was forgotten in the enjoyment of the most hospitable provision made for the delegates and ladies, to the number of 160, who journeyed thither. On their arrival the guests were received by her ladyship, who was later thanked for her hospitality by the President. Lady Wills had, he said, invited them to Harcombe simply out of her wonderful Devonshire generosity, and he was sure that every one of her guests greatly appreciated what their hostess had done for them.

Despite the conditions the outing was a great success, and all who participated are deeply indebted, also, to Mr. and Mrs. E. J. L. Norman, of Chudleigh, who were responsible for the arrangements.

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Motor Excursion to Dartmoor.

To the great delight of all, the weather relented on the following day and so allowed the concluding feature of the social programme, as it was of the whole Congress, to be enjoyed to the full. After the strenuous labours of the week, this excursion came as a welcome relief, accentuated by the fineness of the morning and the fact that the centre of attraction was to be Dartmoor with its wonderful Tors:—

"Colossal rocks in grand disorder piled,
Watch-dogs that centuries shall never tire,
Fantastic guardians of the lonesome wild,
Found in the furnace of primeval fire."

One hundred and thirty members and friends set out in "The Ruby Cars" from the Torquay Town Hall in high spirits, proceeding by way of the Torbay Road

to Paignton. One of the first points of interest, after viewing magnificent coastal scenery, was the Zoo of Mr. H. Whitley, at Primley, who has now a notable collection, and then the farm house, where William, Prince of Orange, made his first headquarters after he landed in England.

Totnes is soon reached—one of the oldest boroughs in the country, its charter dating from 1205, and the Mayor can claim precedence over the Lord Mayor of London. We have no time to stop, but have a splendid view of the River Dart in passing, with its salmon weir, and arrive at Holne Chase amidst luxuriant woods and unmatched scenery—in the distance a full-length view of the Teign estuary and Yes Tor and, on a clear day, Princetown.

After pausing for a few moments we enter the moor proper by the New Bridge, through the village of Poundsgate to the Tavistock Inn, supposed to be the oldest house on Dartmoor, and stop a few minutes to view it.

Proceeding downhill we reach Dartmeet, the junction of the East and West Dart, where at times, especially upon a change of weather, the "cry of the Dart" caused by the piping of the wind in the twist of the glen through which the river winds, is distinctly heard.

"River of Dart, o' River of Dart,
Each year thou claimest a heart."

We leave our cars and walk up the right bank past the ancient Clapper Bridge to Badger's Holt, where our host and hostess (Major and Mrs. Fortescue Scott) have a delightful lunch, with plenty of Devonshire cream, awaiting us.

After justice has been done to the meal, we again join the cars and reach Two Bridges, the centre of Dartmoor. Near by is Crockern Tor, where the Stannary Parliament used to sit. Princetown is now viewed with its gaunt prison standing out in grim relief, 1,430 feet above the sea. It was erected in 1808 to house prisoners of the French-American wars and is now used for long sentence convicts.

On leaving, a good view of Plymouth Sound, the River Tamar and the Cornish Hills is seen, and we reach Dowsland, past Sharper Tor and Sheep's Tor, on through Yelverton and down the hill to Tavistock, the birthplace of Sir Francis Drake—his statue in bronze is seen in front of the old Gate House.

A short stay to view the Square, Market Place and Church, and on we go to Brentor, capped by a little 13th century church standing on the edge of the precipice, and Lydford Gorge, where a half hour's halt is made to go down into the wooded ravine of the Lyd, with its mass of ferns, mosses, lichen and ivies—a ravine which is probably the finest of its kind in England.

We ascend the hill to Lydford Village, which in Saxon times was one of the largest boroughs in the West and possessed its own mint, and even now is still the largest parish in England and houses the Mother Church of Dartmoor.

We see the remains of the Castle, where Judge Jeffreys held one of his "Bloody Assizes," and the legend is that his spirit in the form of a black pig still haunts the Court Room.

Passing the Dartmoor Inn, we cross Black Down to the village of Mary Tavy and then on to Tavistock again, but this time we only pass its outskirts and without a stop go up the steep hill of Moor Shop through Two Bridges. Continuing through desolate tracks of moorland, Postbridge is reached, below which is the finest Clapper Bridge on Dartmoor, which in all probability belongs to the packhorse period.

Warren House Inn is the next point of interest, and then Beetor Cross—a typical Dartmoor cross—along a narrow lane, passing an oddly-shaped freak of nature, Bowerman's Nose, to Manaton, situated on the fringe of the moor and possessing a Church dedicated to St. Winifred, the Welsh martyr maid.

A halt is made, none too soon, at the Kestor Hotel, for tea, and where the genial landlord had prepared a typically-enticing Devonshire meal. No time remains in which to view Manaton Rocks at the rear of the Hotel, and we board the motors for a pleasant forty minutes' run home, downhill all the way, through Bovey Tracey and Newton Abbot. Everyone voted that they had spent a most enjoyable day in comfortable cars and in the care of good drivers.

A gentleman from the "North" expressed the opinion that the scenery beat "Deeside"; the following words of the poet cannot, then, be far from the truth:

"O the shining road, unfenced and free,
It leads to heaven for you and me."

R. B. N.

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Mention must here be made of the splendid series of excursions, by sea and land, carried out under somewhat difficult conditions, provided for the entertainment of the ladies by the indefatigable Ladies' Committee under the leadership of Mrs. Wooldridge. The full programme could not be completed, owing to the inclemency of the weather, but the excursions that were undertaken were well patronised and thoroughly enjoyed.

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It is to be feared that any who went to Torquay with the primary intention of impressing their fellow delegates with their skill on golf course and tennis court had a disappointing time, for the weather precluded the possibility of any other than a very spasmodic use of the admirable facilities provided.

The devotees of the club, however, certainly had the better of matters and did at least manage (albeit in the pouring rain) to complete an 18 holes stroke competition on the Petitor Course of the Torquay and South Devon Club on the Wednesday. The scores were:—H. L. Torrance, 100—17—83; O. C. Bradley, 98—12—86; W. N. Wright, 103—16—87; J. Chambers, 99—11—88; J. W. McIntosh, 107—18—89; R. Simpson, 106—16—90; G. H. Locke, 115—20—95; R. J. Stow, 116—18—98.

(Continued at foot of first column next page.)

THE SURGICAL DEMONSTRATIONS.

Instructive Operations Delight the Delegates.

The pleasure and profit derived from the operations performed at the Torquay Congress will render memorable the particular session concerned, which was held at the Scala Garage on the afternoon of Thursday, September 15th.

A large attendance bore witness to the avidity with which are seized such opportunities of witnessing the work of masters in their respective operative spheres, additional zest being afforded on this occasion by the excellence of the facilities provided for viewing the efforts of the demonstrators. The effectiveness of these facilities was, moreover, increased enormously by the otherwise regrettable circumstance that lack of time rendered necessary the almost simultaneous performance of the whole series of operations. There was thus an avoidance of that crowding round the subjects of operation which has too often in previous years tended to produce exasperation alike in would-be spectators and in handicapped demonstrators.

As on former occasions, however, we would support the suggestion that more time than it has hitherto been the practice to allow might be devoted to this immensely popular practical feature of the Congress proceedings.

Forsell's Operation for Crib-biting.

Professor Wm. Mitchell, of the Royal (Dick) Veterinary College, Edinburgh, performed this operation on a confirmed crib-biter which, however, at the time of operation was in fair condition; but was reported to have been very poor last winter.

The horse had been going at grass up to two days before operation, but had been prepared by receiving oats for a few days before this and during the two days preceding the operation it received altogether about 2 lbs. of glucose in its drinking water.

Half an hour before casting, the horse received the following narcotic: ℞ Chloral hydras ℥iss; Theriacæ ℥viii; Aquam ad ℥xx; M. Ft. haust. Using a Cox's muzzle, chloroform anæsthesia was maintained throughout the operation, ℥iiiss being used altogether.

The seat of operation was shaved and washed in the morning of the day previous to operation, and in the evening washed with ether and painted with tincture of iodine. The steps of this operation have already been fully described by Prof. Mitchell and were published in the *Veterinary Record*, Aug. 6th, 1927, so there is no need to repeat them again in detail.

(*Continued from previous page.*)

No record of the social aspect of the Congress would be complete without reference to the delightful entertainments which it was the good fortune of the delegates and their ladies to find running at the Theatre Royal ("Mercenary Mary") and the Pavilion ("Interference"). Large organised parties visited both these houses on the Thursday evening and were loud in their praises of plays and players.

It was remarked how little hæmorrhage there was in this animal in spite of the extensive nature of the operation, only four bleeding points requiring to be ligatured.

Rig Castration.

Mr. H. P. Standley, M.R.C.V.S., of Norwich, carefully detailed the processes of his operation in the following words:—

The subject which has been provided this afternoon by your Committee is a two-year-old hunter, from which the right testicle was removed last spring by Mr. Harvey, of St. Columb. There is no trace of the left gland.

The first consideration in an operation of this kind is the method of casting. The one I have chosen, as far as I know, is the most simple. Any method will do, providing the thighs are well spread open. The next consideration is getting the animal well under the selected anæsthetic; I usually start with 1½ ounce doses of chloroform in a closed mask, followed by ½ ounce doses, and opening the shutter at the end of the mask.

Having had the scrotum and penis thoroughly washed and disinfected, it is a good plan thoroughly to examine the scrotum to ascertain signs of any old cicatrix which may be present, which aids one respecting which testicle has previously been removed. It will not always do to trust entirely to this, as the only way to say definitely if the testicle has been removed is by opening the scrotum and feeling for the stump of the cord. In this case you will see a well-marked cicatrix on the right side of the scrotum. The next step is to make an incision into the scrotum on the left side, about one inch from the middle line. The underlying tissues must be carefully dissected away by blunt dissection with the fingers, in order not to injure the large network of vessels met with in this area. The dissection must be continued and a thorough search made for the missing organ quite down to the internal abdominal ring, keeping the hand in the process as close to the thigh as possible. The internal ring can be easily distinguished as a small slit at the bottom of the canal. If the gland cannot be felt anywhere in this region, next puncture the peritoneum just above, and to the inside of, this ring, and insert one finger into the abdominal cavity. A sweep round this region will often result in discovering the cord of the missing gland; by putting traction on this the gland can be pulled through the hole in the abdominal muscles and removed by the écraseur. If no trace can be found in this position two fingers must be inserted, when, if no result is obtained, insert the whole hand and make a thorough search for the cord, or testicle, which, when found, can be removed in the usual way.

In some cases the testicle in the abdominal cavity is of such a large size that it is totally impossible to withdraw it without making too large a hole in the peritoneum. In this case the operation should be discontinued, the wound allowed to heal, and the testicle removed by the flank operation later on.

I never plug the wound afterwards, with the exception of cases where the hole in the peritoneum is a very large one. In ordinary cases simply suture the scrotum.

In liberating the animal, roll him on to the side operated on; otherwise, when he is straining to get up on his legs, prolapse of the bowel may arise.

After-treatment consists of a fair amount of exercise, or turning out to pasture after the second day.

Ovaro-hysterectomy in the Cat.

Professor A. R. Smythe, M.R.C.V.S., D.V.S.M. (Royal Veterinary College, London), who performed this operation, supplies the following description:—

The animal should be fasted for twenty-four hours prior to the operation; a small meal may be allowed a few hours beforehand, as such a proceeding is said to lessen the risk of collapse. The site of the operation lies in front and below the angle formed between the lumbar vertebræ and the pelvis. Either side of the body may be selected, personally I prefer the left side.

An area of 2½ square inches on the site indicated should be shaved prior to the time of operation.

The cat is anæsthetised with chloroform of guaranteed purity, made for purposes of anæsthesia, otherwise irritation of the respiratory passages and sneezing may be induced.

Operative position: Cat lies on its right side.

The skin exposed by shaving is painted with tinct. iodi. mitis, and the hair in the vicinity lightly wiped over. A calico apron previously sterilised, and fitted with a small elliptical window, is now spread over the operation site and working through the window one makes an incision downwards and forwards through the skin, of about an inch in length. The upper extremity of this incision should be about three-quarters of an inch from the angle indicated above.

One now encounters fat; this is incised in the same direction, when the muscle fibres of the external oblique are seen running downwards and backwards (to the long axis of the body). These fibres are separated by blunt dissection in the direction in which they run. Occasionally, at this stage, one may encounter a little hæmorrhage, otherwise the operation should be bloodless. If hæmorrhage is met with the bleeding vessel should be clamped, and the wound dried out.

The internal oblique now lies exposed and the fibres are seen to run vertically to the long axis of the body. These are again torn apart and the peritoneum is exposed. This should be pierced, care being taken not to separate the peritoneum from the abdominal wall by undue pressure.

A small dilator, working on the forceps principle, is slipped into the abdominal cavity and held in the left hand. When the edges of the wound are pushed apart the left horn of the uterus will be seen, provided that a good overhead light is available. In the young cat it will be recognised as a slender, pinkish, cord-shaped body; in the adult cat, if in œstrum or after pregnancy, the horn may be the size of a large lead pencil, and is then more easily picked out owing to the presence of congested and tortuous uterine blood vessels. In very fat animals the horn may be concealed. Using the right hand, holding a blunt-pointed metal hook on a pair of blunt-pointed forceps, one draws the horn through the operation wound. The ovary follows and one clamps the tissues connecting the ovary to the dorsal wall with Spencer Wells forceps. The horn is now traced backwards, the other horn picked up and its ovary treated in the same way.

In young cats the ovaries may be safely cut off close to the uterine side of the forceps, but in older cats with prominent uterine vessels a ligature of No. 0 silk should be placed on the renal side of the forceps before severing the ovary.

The body of the uterus is ligatured with No. 0 silk and then amputated anterior to the ligament. After pregnancy the stump of the uterus should be painted over with tinct. iodi.

One now removes the forceps, mops out the wound, and sutures.

The method of making the incision may seem at first sight complicated. The object of varying the angle of incision in the different layers is to form a valve-like arrangement so that one may avoid the use of deep sutures. I prefer one deep suture to include the internal oblique and peritoneum. The skin is brought together with four or five interrupted silk sutures, and painted with tr. iodine. No covering is necessary and the sutures are ready for removal after eight days.

The advantage of this method, provided one uses sterilised instruments and modern surgical technique, is that the operation wound always heals by first intention and that the mortality is practically nil. Also, owing to the few sutures required, the operation can be performed in about fifteen minutes so that operation risks are minimised.

Two points may be mentioned which sometimes give difficulty to the surgeon.

(1) In occasional cases difficulty may be encountered in picking up the second uterine horn.

(2) In some cats the attachments between the horn and the ovary are very slender and any undue traction on the former may result in division of the two parts; the ovary then recedes into the body and is difficult to regain. If left in position, the animal will not conceive owing to the absence of the uterus, but œstral periods will occur and, in a percentage of cases, a condition of nymphomania will supervene.

Ovaro-hysterectomy in the Bitch.

Concerning this, his second operation, Professor Smythe says:—

As in the cat the animal should be fasted before operation and the operation area shaved. An hour before operation a dose of morphia should be given hypodermically and chloroform should be used during the operation.

Operative position: Animal lies on its back.

If one imagines a line drawn from the umbilicus to the pelvic brim to be divided into thirds, the site

of the incision will cover about half of the anterior third and the whole of the middle third in the smaller breeds. In larger bitches the length of the incision must be modified. The part should be painted with tr. iodi. mitis and a calico apron spread over it, an elliptical slit being cut over seat of operation.

The incision may be made through the linea alba or slightly to the side through the skin, aponeuroses of external and internal oblique muscles, rectus abdominis (with its sheath) and peritoneum. The former method is the easier; the latter is said to ensure better healing owing to its superior vascularity.

A retractor may be used if necessary, but generally the uterus can be seen or felt to roll between the finger and the abdominal wall. The ovaries are drawn gently through the wound, and the ovarian attachments to the dorsum clamped in Spencer Wells forceps and ligatured with No. 3 silk dorsal to the forceps.

The ovaries are severed ventrally to the forceps, drawn away from the operation wound, and the uterus extended. A ligature is now tied around the body of the uterus, which is severed cranial to the ligature. The stump is tucked away in the abdominal cavity.

A continuous suture of sterile catgut is used to unite the peritoneum and deep fascia, a reinforcing line is placed more superficially and the skin sutured with interrupted silk sutures. Care must be taken to prevent the animal from licking out the sutures, and rest should be enforced for eight or ten days.

Very fat bitches are more difficult to operate on, as the parts may be embedded in a thick layer of fat. It is necessary to ligature the broad ligament in these cases, otherwise hæmorrhage will occur; in young bitches they are simply torn through.

The only difficulty likely to be met with is to draw the ovaries through the incision, as in some bitches the attachments do not readily allow of this.

Gastrotomy in the Calf.

Mr. O. Stinson, M.R.C.V.S., Appleby, shared success with his fellow demonstrators in performing the above operation, which is now to be described:—

The calf was examined clinically immediately before the operation and there was nothing to point to operative treatment being contra-indicated. The prognosis made was most favourable.

The subject was then placed on its back on the operating table, and the legs held by two assistants, standing in front and behind.

The site of the operation was prepared in the usual way, tr. iodi (B.P.) being used to disinfect the skin, and the animal was suitably anæsthetised.

An incision was made a little to the right of the linea alba, half an inch behind the sternum, and carried backwards for about four inches. The skin, muscle, and peritoneum were divided; during the process a comparatively large vessel was encountered subcutaneously and was secured by the aid of two pairs of artery forceps and incised in between. There was practically no bleeding, but great care was taken at every stage not to continue until any particular vessel had been dealt with in regard to hæmostasis. The incisions were deliberate and were made with a view to tissue building later at the time of suturing. All the layers, before proceeding further, were disinfected with tr. iodi, sterilised cotton wool swabs being used.

At this stage the operator introduced the whole of the hand into the peritoneal cavity to examine the abomasum, which revealed the presence of a great quantity of foreign matter. Part of the abomasum was brought through the abdominal incision and a portion of the foreign matter was brought into the grasp of the left hand, as is done with a testicle in castration.

The calf until now was on its back, but at this stage it was gently put on its right side; in fact, almost as if it were falling from the operating table, so that when the stomach was incised the contents would fall directly on to the floor by gravity, thus preventing any escape of material into the peritoneal cavity, or soiling of the stomach wall. The incision through the stomach wall was three-quarter inch in length and was made by one bold incision on to the foreign matter grasped through its wall by the left hand, as described before. The index finger was introduced into the stomach through the incision, and with its persuasive use together with the position of the calf allowing the contents to gravitate through the wound, the stomach was emptied. Masses of material were broken up inside the stomach with the finger and brought out as small pieces.

The emptying of the stomach took a considerable time, and Mr. Stinson stated that the smaller the incision the better, so long as the stomach could be completely evacuated. During the process the stomach wall was kept thoroughly antiseptic by the continuous irrigation of a very warm half per cent. solution of Lysol. This was done by pouring on from a sterilised jug and several gallons were used in this way. There was no need for the use of any material for packing, such as sterilised gauze, to prevent foreign matter getting into the peritoneal cavity, as the stomach more than filled the incision, and thus prevented any of the material during evacuation getting into the cavity. Although the position of the calf facilitated the ridding of the abomasum of its contents, it also, by necessity, facilitated the escape of more than the abomasum and the operator had constantly to manipulate the organ to keep it from coming wholly to the exterior.

The demonstrator was immediately able to replace any portion which came out unnecessarily, knowing that no infection could be carried inside because of the constant antiseptic irrigation. When it was quite certain that the abomasum was empty the stomach was sutured, the calf still being on its side. The use of Lembert's sutures was adopted and silkworm gut employed. The needles used were small and full curved. There were five sutures in the stomach wall. The first to be inserted was the middle one; this was left untied and the ends long and held by an assistant, who in this way held the stomach in the

abdominal wound, thus enabling the operator to use both hands for suturing. The other four sutures were inserted, tied and the ends cut. At this stage the operator tied the middle suture, but did not cut it until he was quite satisfied that the stomach wall was thoroughly clean. The sutures were carefully examined and disinfected with tr. iodi.

The calf was now put on its back, still with part of the stomach protruding through the abdominal wound, and disinfected very thoroughly with a warm half per cent. solution of Lysol. The middle suture was cut and the abomasum was gently replaced into the abdomen. The peritoneum immediately inside the wound for about one-eighth inch was disinfected with T.C.P. (Trichlorophenylmethyliodosalicyl in water). The peritoneum was sutured with very small full-curved needles and fine silk. The muscles were now sutured with silkworm gut and lastly the skin with strong silk sutures, of which there were thirteen. All new spots brought into view during the suturing were disinfected and great care was taken to obliterate all " dead spaces " in which blood clot or effusion might collect. The wound was finally soaked with tr. iodi and the skin round about was disinfected with T.C.P. The calf was taken from the operating table with all feet together so that no strain was put on to the stitches.

After-treatment measures, according to Mr. Stinson's instructions, were as follows :—The disinfection of the wound every other day with tr. iodi while the calf was held on its back, the thirteen sutures to be removed or accounted for about the tenth day, the wound and sutures to be soaked with the same antiseptic immediately before removing; the calf to be fed in six hours with a cupful, half milk and half water, and the food to be increased gradually and given little at a time several times a day, so that at about the fifth day the calf would have three-quarters the amount of milk of a normal calf of the same age; a muzzle to be kept on until the end of the fifth day. If the temperature became high at any time the food at once to be lessened and made weaker.

The subject of the operation was a typical red dual-purpose Cumberland and Westmorland Shorthorn bull calf between six and seven weeks old, and was seen by the operator on the previous Saturday evening. It had the history of being born a normal calf, but at the age of a little over a fortnight it was disinclined to take its food, slightly constipated, was lying about rather more than usual, and had a cough. Four weeks elapsed before advice was sought, by which time the calf had become very emaciated.

The farm where the calf was bred was just recovering from a visitation of a sub-acute form of *Bac. coli* infection and it was explained that the diagnosis was perhaps a little speculative, and done by the process of elimination, but at the operation it was easy to see that the foreign material in the abomasum was obviously the cause of the trouble. It was constituted of curd, and hay, which latter had not been through the process of rumination. In fact, there was one piece of straw nine inches long which was quite rigid, and must have extended into the omasum. This was significant, particularly as the calf had been muzzled for four days previous to the operation, except at the times it was given a little milk and water from a pail.

Post-operative prognosis :—Very favourable and healing by " first intention " expected.

The operation was fully described as it proceeded and many questions were answered, and surgeons wishing to take up the operation were advised to operate on what might be called a typical case, rather than on anything that they thought might be the trouble as, in a typical case, the operation had met with complete success. No doubt some of these would recover with medicinal treatment, but the demonstrator strongly advised an immediate operation after the condition had been diagnosed. The following was the typical case cited :

A calf *born in normal health*, going on well until from a few days to five or six weeks, becoming disinclined to feed, somewhat constipated, having a cough (reflex), quickened and abdominal breathing, temperature up to 108.

(A telegraphic report concerning the condition of the subject operated upon, which was received by Mr. Stinson from Mr. Masson, of Torquay, on September 21st, stated : " Everything satisfactory so far.")

Other Demonstrations.

The Subpalpebral Tuberculin Test.

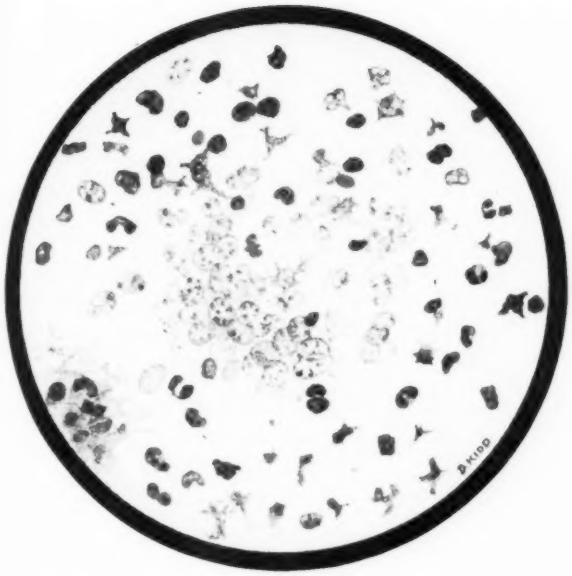
Mr. R. H. Smythe. M.R.C.V.S., Camborne, demonstrated this test, which was carried out as follows :—

The subject was a South Devon cow, which had been subjected to both the intradermal and subpalpebral tests, forty-eight hours previously. The latter test was introduced by the demonstrator in the *Veterinary Record* of May 21th, 1927. Mr. Symthe explained that the advantages of the test were as follows :—

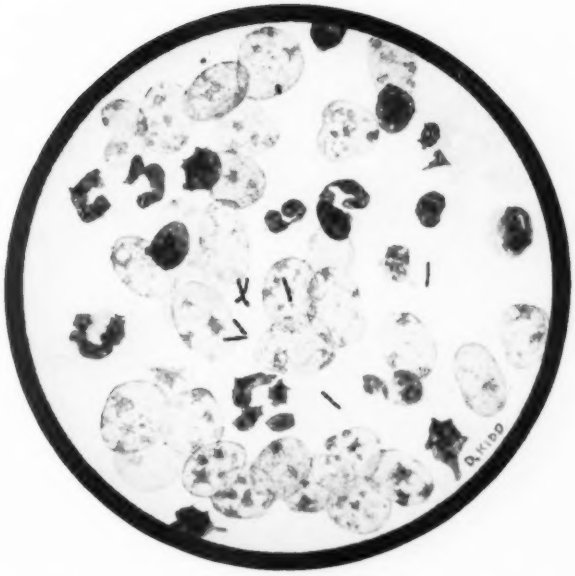
(i) One injection was sufficient ;
(ii) Results were definite. Either a *marked* swelling resulted or none at all ;
(iii) Technique was simple and fool-proof.

The syringe, of 2 c.c. capacity, was fitted with a dental type of needle, extending half an inch beyond the butt. It was provided with a glass barrel and metal plunger and fitted with finger grips and a " crutch " at the end of the plunger to fit into the palm of the hand. This constituted the ideal syringe for either intradermal or subpalpebral work. The tuberculin used was the concentrated form, identical with that recommended for the intradermal test, the dose being .2—.4 c.c. It was possible to inject as much as one drachm into the subpalpebral region of a healthy cow without producing any swelling.

In making the injection, the head was steadied by grasping the nose in a bulldog. The operator, standing at the right of the subject, passed his left hand over the left eye, pressing his index finger firmly against the orbital rim. The needle was inserted just above the edge of the bone, using the tip of the finger nail as

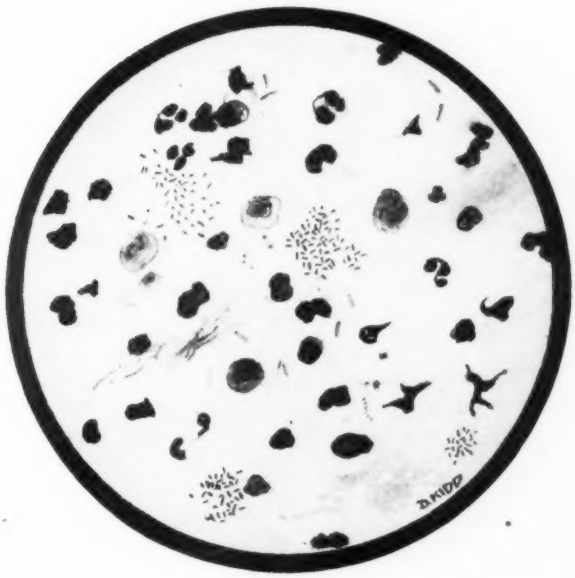


Tuberculous milk showing cell groups under $\frac{1}{6}$″ objective.



Tuberculous milk showing cell groups under $\frac{1}{12}$″ oil immersion.

Tuberculous milk showing the effect of antiformin on the cells.



Johne's disease, scraping from intestine showing groups of Johne's bacilli.

a guide. It thus penetrated the entire thickness of the skin, the tuberculin entering the fibro-fatty tissue at the base of the eye.

The reaction, in the demonstration subject, was quite marked at the 24th hour and was exhibited at its height at the 48th hour. The swelling usually lasted from three to four days.

The intradermal reaction, used as a check, in this instance gave a slight reaction, characterised by most members as "doubtful." The eye submitted to the subpalpebral test showed a large swelling of the lower eyelid and surrounding tissues, which was visible from some distance. The swelling was firm, the lower eyelid was rigid, but the condition was evidently not markedly painful. Regarding the efficiency of the test, Mr. Smythe stated that he considered that the subpalpebral tissues gave a very pronounced reaction, owing to the amount of soft, connective tissue present in that region. The overlying skin was thin, and the reaction was therefore either pronounced or *nil*.

A comparison with other tests, in the same subject, had shown a preponderance of reactions to the subpalpebral test, particularly in advanced cases where it was often difficult to decide whether emaciation resulted from tuberculosis or from Johne's disease or other condition.

During the past twelve months, he had met with one tuberculous cow which failed to react to the subpalpebral test (also the intradermal) but in that period he had observed a considerable number which had given no reaction to the intradermal test but had given a pronounced reaction to the subpalpebral. He had also obtained a large number of intradermal results, which he considered "doubtful."

The subpalpebral method could be used alone but he recommended its application in conjunction with either the subcutaneous or intradermal tests.

Tuberculous Mastitis and the Detection of Tubercle Bacilli in Milk.

Capt. H. L. Torrance, M.R.C.V.S., D.V.S.M. (Vict.) gave a demonstration on the above subject which was very keenly appreciated as a most valuable contribution to the afternoon's proceedings, his miscroscopes and diagrams being, throughout, the centre of an interested group. In the course of his demonstration Capt. Torrance said:—

The subject on which I have been asked to demonstrate to-day has always appealed to me as one of the most important to us in the realms of public health. Recent legislation has given our profession statutory recognition, and I am particularly anxious that we shall amply justify that recognition.

The diagnosis of tuberculous mastitis and the microscopical detection of tubercle bacilli in milk is a subject hampered by prejudices and disbeliefs, and my object to-day is to reduce it to its simplest possible formula.

As the time at our disposal is short, I will proceed, without further preamble, to describe the different types of tuberculous mastitis commonly to be found.

Types of Tuberculous Udder.

Tuberculous Interstitial Mastitis. Tuberculosis can affect the udder in different ways, and can affect one or more quarters. One of the types is very characteristic, and, once seen, can be diagnosed almost with certainty clinically, and if combined with a microscopical examination of the milk there is very little likelihood of any mistake being made. I refer to what is generally described as tuberculous interstitial mastitis, where one or more quarters, but generally only one, is uniformly much enlarged, almost painless, and very hard, just like feeling a large piece of rounded wood covered with skin, to which, however, it does not adhere. There is, as a rule, no difficulty in finding acid-fast bacilli in the milk from a quarter of this type. This condition sometimes developes very rapidly: I have known it develop in as short a time as ten days, and this very fact sometimes misleads the farmer, who imagines that it is an ordinary case of "garget," and in consequence he applies some stimulating liniment, which in turn may mislead the veterinary inspector, as the application of the dressing makes the quarter painful on palpation. The milk drawn at the time of examination shows no alteration to the naked eye, unless when the condition becomes advanced, when it may resemble dirty-looking serum, which simply teems with bacilli. This is undoubtedly the easiest type to diagnose clinically and microscopically.

The Nodular Variety. Another variety is the nodular form, where the whole quarter feels full of nodules varying in size and quite hard. In this type of lesion the quarter may have atrophied *en masse*, but the skin is freely movable, and the secretion is very small in quantity and watery looking. Again, as a rule, bacilli can be demonstrated without much difficulty.

The Indurated Area Lesion. The third type is where part of a quarter, or quarters, is indurated, and enlarged over the indurated area. Any part of the udder may be so affected, but it has been my experience to find it most commonly in the upper posterior part of the hindquarters, and particularly the left one. Another fairly common site is the ventral part of the udder anterior to one of the hind teats. This type of lesion is the one I have met most frequently and, speading generally, where a fairly large area is affected, with the aid of the microscope an accurate diagnosis can be made, but when the area is small and deeply seated in a large udder, it is frequently very difficult, if not impossible, to palpate, and so few bacilli may be passed in the milk that their detection with the aid of the microscope would try the patience of Job. It is comforting to know, however, that such cases are extremely rare, and when they do occur one must have recourse to the biological test.

I might just mention here the cases where certain cows heavily infected with tubercle, pass tubercle bacilli in the milk, although their udders are "healthy." Theoretically the possibilities of this happening are great, experimentally it has been proved to occur, but

in actual practice one very rarely sees a case of it. I am not aware of having seen any.

Differential Diagnosis.

I do not intend to bore you by enumerating the various forms of mastitis and describing their symptoms, but I think it would be wise just to mention something about their differential diagnosis from tuberculous mastitis.

There is no possible chance of confusing tuberculous mastitis with a very acute inflammation of the udder. It is very different, however, with subacute and chronic cases, and those where the only evidence of disease ever having existed is a slight induration of a quarter or quarters.

In talking of tuberculous mastitis, the first type I described was the interstitial form, and I said it was quite typical. I know of no other disease of the cow's udder which resembles it. There is the enormous hard painless swelling, the milk is unchanged in appearance, the skin is freely movable over the swelling, and there is no history of ordinary mastitis.

The Nodular Type. The second variety I mentioned may be mistaken for cases of mastitis of long standing, or chronic cases where the induration is marked. In both cases the quarter is usually atrophied, but in the tuberculous one the quarter seems to shrink more uniformly, and is more distinctly nodular, while the non-tuberculous one shows an induration more of the type of scar tissue, which, of course, it closely resembles. As the new connective tissue formed to replace the destroyed udder tissue contracts, it becomes very hard and irregular to feel and, as the skin is commonly involved, the quarter is often distorted, with the teat pointing in an abnormal direction. If there is any secretion at all, it is small in amount and looks either very watery, or like serum, and contains fairly large coagula, which if centrifugalised forms a heavy deposit.

The Indurated Area Type. The third type of tuberculous mastitis mentioned, where one gets an indurated area varying in size, in one or more quarters, is, in a certain number of cases, very difficult to differentiate from an induration resulting from non-tuberculous mastitis. In a small proportion of cases to differentiate them clinically is impossible, and even with the help of the microscope success is not assured, and we may require to have recourse to the biological test. As a rule, in a tuberculous udder of this type, the milk, when freshly drawn, shows no change to the naked eye, whereas that from the non-tuberculous indurated udder frequently shows very small clots, when it is carefully examined. If the milk appears fairly normal except for the presence of small clots, it is highly probable that the udder secreting it is not tuberculous. Another pretty definite non-tuberculous characteristic is where there is marked and definite induration in the galactophorous sinus. Cases of tuberculosis affecting the mucous membrane of the sinus and large ducts where they open into it are very rare, whereas the mucous membrane is frequently attacked in certain types of mastitis such as catarrhal, etc., which results in very considerable induration, a condition which is easily detected.

Red Blood Corpuscles in Milk.

It is popularly believed that if the milk contains red blood cells it cannot be from a tuberculous udder. There is no doubt that blood in milk generally indicates traumatism or acute mastitis or some disease of the teats, but it is also a fact that in tuberculous mastitis one sometimes gets small hæmorrhages which may be compared to pulmonary hæmorrhages arising from the same cause, and the presence of a small quantity of red blood cells in the milk must not be taken as an indication that it is non-tuberculous.

Taking of the Sample.

The sample of milk to be taken for examination should be taken under strict precautions to ensure that as far as possible no extraneous organisms get into the bottle.

I take the strippings after massaging the udder well. They are most convenient, as the cows are examined when their udders are empty, and the results I have had indicate that the strippings are quite satisfactory to examine.

It is better, I think, to allow the sample to stand about 12 to 18 hours in the ice box before examining it, in order to give the sediment and organisms present time to settle at the bottom of the bottle. A certain number of organisms rise with the cream to the surface, but we will not bother with them, as to do so would complicate the procedure, and we want to find the bacilli in the quickest and easiest way possible.

Without disturbing the milk any more than is necessary, introduce a pipette right down to the bottom of the bottle, and draw off about 10 c.c. of milk, which contains the sediment and organisms carried down by it. Now run it into the centrifuge tube, and centrifugalise for 10 to 15 min. at 3,000 revolutions per minute. Decant the milk and examine the deposit microscopically.

Where the deposit is great and the supernatant fluid is watery or serum coloured, if it is tuberculous the likelihood is that you will have little trouble in finding tubercle bacilli, although the probability is that it is non-tuberculous, as a very heavy deposit is rare from a tuberculous milk, and is only found in very bad cases. A slight deposit even where it contains red blood cells does not indicate much, but if the loopful of deposit is difficult to spread on the slide the probability is that it is non-tuberculous. The usual deposit from a tuberculous milk is small in amount, and spreads easily as a film on the slide.

Staining the Slide.

Before staining the slide I should like just to say that I shall do so in the simplest way possible, because complex and tedious methods are of little use to the busy practitioner, who may be summoned to the telephone any moment, and if, for instance, he is fixing his slide in ether and alcohol when he is

interrupted, he may return to find his surgery in flames. So please bear in mind that my object is to show you the easiest and simplest way of detecting tubercle bacilli in milk, so that when you are called on to inspect a herd giving tuberculous milk, you may be tempted to adopt it, if you have not already done so.

1. With a strong platinum loop transfer some of the deposit on to a slide, taking care not to make your smear too thick, or it will be very difficult to pick out the tubercle bacilli against the very blue background of the stained cells.

2. Drying. This may be done by simple exposure to the air, or by gentle heat. One prefers the latter because it is quicker. It is well to keep the fingers between the slide and the flame to indicate the temperature, which should produce just a feeling of warmth to the fingers. If the slide is overheated before it is quite dry, the film will be charred and consequently spoiled.

3. Fixing. There are quite a number of methods of fixing, but we are all out for simplicity as far as that is compatible with efficiency, so we will do it by just passing the slide once or twice through the flame after it is quite dry, testing the temperature on the back of the hand. The slide should be just hotter than one can bear. The heat coagulates the albumen and so fixes the material to the slide.

4. Staining with Carbol Fuchsin. The film is treated with this, heated for about five minutes. There are various methods of applying the heated stain, and one's decision depends to a great extent on the number of milks or other specimens for examination, but as you are not likely to be examining more than one or two at a time, I would advise you to do it by heating the slide with the stain on it. Where there are many slides you can arrange them in a row on two glass rods, and heat the stain on the slides by passing the bunsen flame underneath them. Another method is simply to heat the stain in a test tube and pour it on to the films. Where cover slip preparations are used, the procedure is to put the cover slips in the hot stain, which is heated in a watch glass over a vessel containing very hot water. Whichever method you adopt, you must see that the stain is not allowed to boil, otherwise the film will leave the slide.

Here I might mention that it is a good practice to filter the stains immediately before use, in order to keep the slide as free as possible from acid-fast débris, because, owing to evaporation, there are nearly always some solid particles in the stain.

5. Pour off the carbol fuchsin and treat with absolute alcohol for 1 to 2 min. This simple procedure is of the utmost importance, and should never be omitted, or errors in your diagnosis may very easily occur.

A great many acid-fast bacilli have been described, many of which have been found in milk. If you carry out the simple method I am showing you, only two can occur in a milk sample, namely, the tubercle and Johne's bacillus, and the latter only where there is considerable carelessness in taking the sample. These two bacilli are very different microscopically, and can be distinguished anywhere by that means alone. This diagram shows Johne's bacilli in a smear from the inside of the bowel from a case of Johne's disease, and you can see the very striking difference. They are very much smaller than tubercle bacilli, and look almost like coccobacilli: they are not beaded, and appear much stronger for their size.

Where the film is not treated with alcohol one occasionally sees an acid-fast organism, which may be quite easily mistaken for the tubercle bacillus.

6. Wash off the alcohol and treat with a 15% to 20% solution of sulphuric acid to decolorise it. During this process it is well to wash frequently with water, to see what progress is being made, because when the water is applied the yellow colour caused by the sulphuric acid becomes pink. When the film shows a delicate pink shade it is time to stop decolourising.

7. Wash thoroughly under the tap to remove all traces of sulphuric acid.

8. Stain with a watery solution of methylene blue for one minute.

9. Wash and then dry with filter paper very gently over the flame.

Microscopical Appearance of the Slide.

By this method tubercle bacilli are stained red, cells and other organisms present are blue.

Tubercle bacilli may be arranged either singly, or more characteristically in pairs or faggots. You see instances of these on the slides and on the drawings.

Here it might be as well if I just mention, in order to avoid trouble for the uninitiated enthusiast, that all the red particles on the slides are not tubercle bacilli. If you are examining a sample from a very suspicious clinical udder, and possibly in rather a hurry to detect tubercle bacilli, you must beware against mistaking acid-fast dirt for tubercle bacilli. Until you are quite familiar with the appearance of the real thing it is a mistake which may easily occur, but with a little experience it is hardly possible. The tubercle bacillus is commonly beaded (although not always), its lines are less severe, it is more slender and graceful, and looks more attractive. When you bring it in and out of focus very slowly, as it fades away it does so gradually, retaining its red colour throughout, and that is what I rely on more than anything else. Acid-fast dirt closely resembling a bacillus or a faggot of them, is either a little darker or lighter in colour than tubercle bacilli, it looks more angular, and when you slowly take it out of focus, at one point the red colour goes, and the suspected object becomes clear, and presents the appearance of a piece of broken mirror, due, I suppose, to the refraction of light. If the object you are looking at does not seem absolutely typical, then it is practically certain that it is not a tubercle bacillus, and you had better make a further examination of the slide.

I wish to draw your attention to certain collections of cells which appear on the great majority of tuberculous slides, and which are extremely helpful to the

microscopist. On this drawing there are some painted from an actual tuberculous milk slide, very kindly lent to me by Mr. Mathews, of the Veterinary Dept., Liverpool. You see they are more or less oval in outline, and that they are arranged in groups, the number of cells to each group varying very widely, anything from three to thirty, or even more. Where one cell covers part of another, by focussing carefully one can pick out the cell outline of the underlying part. They stain less deeply than the other cells present, the protoplasm looks uneven, and the nucleus when present is broken up into about three to eight pieces. It is very common indeed to find tubercle bacilli closely related to these groups, and those on the drawing and under the microscope are typical pictures. These cells are of very great diagnostic importance, and I think I can say, without exaggeration, that they are the absolute secret of success in the microscopical examination of special samples of milk for tubercle bacilli. Once you become familiar with them, you can pick them out quite easily under the $\frac{1}{6}$ inch. objective, and then by looking at that field with the $\frac{1}{12}$ inch. oil immersion, a definite diagnosis can frequently be made in a very short time. In examining a slide they should always be looked for and, if found, they indicate very definitely that there is a strong probability that the milk is tuberculous. If acid-fast bacilli are not found on them, in them, or in their immediate vicinity, a further search will generally be rewarded by their discovery.

The subject of my demonstration is such a colossal one that it is impossible to say all one would like to in such a short time. I have purposely avoided saying anything of a controversial nature, such as, for instance, the value of the supramammary lymph gland as an aid to diagnosis in tuberculous mastitis, because it is not a matter of any real importance, and would confuse the issue.

I shall just mention that various so-called concentration methods have been introduced for decreasing the deposit after centrifugalising with a view to detecting the tubercle bacilli more easily, but I do not know of one that is of any use to us. They have the great objection that they destroy completely the character of the cells, and therefore one of the most important guides to the microscopist, so I cannot recommend them to you. I have a drawing here of a slide I have made in this way, by the antiformin method, which shows very clearly what I mean.

In conclusion, gentlemen, I should like to say very emphatically that I am satisfied that for the rapid elimination of the cow with a tuberculous udder from a herd, in about 80% to 90% of the cases there is no quicker method known than a capable veterinary surgeon who can use and interpret what he sees under the microscope.

. . . . . .

It is imperative that we also make reference here to the demonstration which followed the discussion on Lieut.-Col. E. Middleton Perry's paper, "Electrotherapy in Domesticated Animals." We desire to record the appreciation felt by the members of the action of Messrs. Allen and Hanbury, of 48 Wigmore Street, W., in going to such trouble and considerable expense in conveying to Torquay, for the purposes of this demonstration, the requisite apparatus. The apparatus will be described with the report of the discussion on Colonel Perry's paper.

Business First.

"I have attended many conferences, congresses and conventions in Torquay, but never do I remember one in which the delegates displayed so much enthusiasm and devoted so much close attention to the business side as the Veterinary Surgeons' assembly which occupied most of last week at the Town Hall," writes "The Idler" in the *Torbay Herald*. "The very technical subjects were debated with remarkable spirit and every member seemed to take the most vital interest in the papers read. If ever a body of professional men combined real business with pleasure, the Vets. certainly did. The balance was certainly on the business side."

We Bow.

"The annual congress of the National Veterinary Medical Association of Great Britain and Ireland was held at Torquay, September 12th—17th, 1927, thus the N.V.M.A. and the A.V.M.A. were in session at the same time. A striking difference in the arrangements for the two meetings is that six weeks in advance of the meetings the Lord only knew what would be the program of the A.V.M.A., but the program of the N.V.M.A. had been published together *with the complete papers* to be discussed and had been distributed to the members."

Chicago Veterinary Medicine.

Fish as Carriers of Disease.

Tuberculosis Found in Halibut.

Criticism of the idea that shell fish have been largely the cause of outbreaks of typhoid fever, and of the failure of the authorities to make use of research conclusions in this and other respects, is made by Professor James Johnstone in his report for 1926 on the Lancashire Sea Fisheries Laboratory at the University of Liverpool. Evidence of certain fish having been found to be suffering from tuberculosis and tumours is also given by him.

Giving examples of diseases found in fish, the report mentions the case of a small halibut surrendered by a Birkenhead fishmonger after a food inspector had noticed in it traces of tuberculosis like those found in cattle. All the internal organs were tuberculous, and the effect on them was the same as in the organs of cattle. In the roes the process of fibrosis had gone so far that no sign of the original ovarian structure remained. Another example given is that of a large turbot, which had about a dozen tumours of the type "which in man are the most malignant of all and the most rapidly fatal." Professor Johnstone adds:—"It is, of course, impossible to assert that such fish-flesh would be dangerous to anyone eating it, but its use as human food is strongly repellent, and we know as yet so little of the cause of cancerous disease that such affected fishes should certainly be destroyed as a general principle. This precise fish had not been surrendered or condemned, and was exposed for sale, and had actually to be bought as a specimen."—*The Times.*

CLOSING MEETING.

Induction of the New President.

VOTES OF THANKS.

The closing meeting of the Congress was held on Friday morning, in the main hall of the Torquay Town Hall, which provided an impressive setting for the final phase of a splendid series of meetings.

The PRESIDENT, who opened the proceedings, said: Ladies and gentlemen, the first duty I have to perform this morning, and the last duty as your President, is to invest your incoming President with the chain and robe of office; and in doing so I am given very great personal pleasure indeed, knowing full well that with his previous experience of the working of the Association, coupled with the enormous amount of hard work and attention that he has given to its business side as well as to its scientific and social aspect, you will have during the forthcoming year a President who will be unsurpassed by any of the long roll of your Presidents. I make no excuse, therefore, for not enlarging any further on this matter, and I will ask Mr. McIntosh to rise so that I can perform the necessary ceremony.

[Mr. J. W. McINTOSH was then invested by Professor Wooldridge with the chain and robe of office, amid the cheers of the assembly.]

Continuing, Professor WOOLDRIDGE said: In asking Mr. McIntosh to take up the reins of President for the coming year may I, in the name of all of you, wish him a very successful year of office?

The PRESIDENT (Mr. J. W. McIntosh), who was received with prolonged cheering, said in reply: Ladies and gentlemen, I rise on this occasion feeling very keenly the weight of my responsibilities, but I should be very unworthy of the position you have raised me to if I did not make an attempt to convey to you my sincere thanks for the great honour you have conferred upon me. My greatest difficulty in accepting that honour is a feeling of incompetency to do it justice (cries of "No, no")—and that feeling is made all the more apparent when I recall to mind the names of those distinguished men who have already passed through this chair. It would be invidious to mention names, but I must refer to our immediate past President. (Cheers.) Professor Wooldridge is well known to all of you as a very distinguished member of our profession. A great scientist, a powerful and fluent speaker, and perhaps, what is greater than all, a man amongst men. (Hear, hear.) You will realise then, that my position is made all the more diffficult when called upon to follow so distinguished and accomplished a person, for I cannot claim to be a distinguished member of my profession, nor am I an orator, but I do claim to have some experience of men and matters and perhaps that experience may be of some use to me in carrying out the duties and responsibilities of this high office. At any rate, I can promise you that I will do my best—(applause)—and as I know I shall have the very loyal support and co-operation of every member of the Association, including the ladies—(hear, hear)—which is very important, I think we can look forward, with hope, to the upholding of the traditions of the chair, and the work of the Association. In conclusion, I would like to say this: my official duties may not permit me to give as much time as I would like to the service of the Association, but I will give it what I can. I do want all the Districts to organise themselves as quickly as possible, so that they may give me what help I shall need, and I shall need a great deal. I can only again thank you with all my heart for the signal honour you have done me to-day. (Applause.)

Continuing, the PRESIDENT said: The next item to be dealt with is "Matters arising during the Congress." The only thing that has arisen of importance is the allocation of time to readers of papers and the openers. (Hear, hear.) I think your Council have heard what you had to say on that point, and you may rest assured that they will give the matter every consideration at the earliest moment. If there are any other remarks you wish to make we shall be glad to have them now.

Mr. H. S. ELPHICK: The other day we had a long article in the form of a so-called discussion on Major De Vine's paper on "Diseases of the Cow considered in relation to Milk Legislation." This was cut short by the Chairman, who informed the gentleman in question that his reply would be published. I take it that if a thing has not been discussed it cannot be published, and I would, therefore, like a ruling on this point. It would be grossly unfair to Major De Vine that he should have been tied down to a certain number of words, and then that a reply put in and not entirely read should be published as a fair discussion on the essay. If a thing has not been openly discussed it cannot be published. (Hear, hear.)

Mr. HUGH BEGG (Hamilton): I think we may safely leave this matter in the hands of the Executive. They are men of common sense, and I move that we leave them to deal with it.

Major DE VINE: It seems to me that it would be desirable for the Council to consider the allocation of time to the various subjects brought up for presentation and discussion at the Annual Congress. Matters affecting the public health—those matters relating to meat and milk and diseases of animals—are subjects which affect all the whole and part-time officers and inspectors, and also a great majority of the other members of the profession. They are subjects, therefore, which should be given ample time for proper discussion. There was one subject which interested practically the whole of the members who have been present at this Congress, but they had not an opportunity to either discuss it or give their advice. It is necessary owing to the different treatment meted out to the inspectors that we should have their views so that the Council may know how to deal with the Local Authority in their dealings with veterinary inspectors. I suggest that

ample time be given to such subjects and that they should not be allowed to clash. A full day should be allocated to all such important matters.

Professor G. H. WOOLDRIDGE: The matters which have just been referred to have a very great importance so far as I am concerned, for in some respects I am responsible for the conduct of things at the present Congress, although in reality it is the Provisional Committee who are really responsible. Gentlemen, we all learn by experience. (Hear, hear.) The first attempt the Association made to have a separate section devoted to matters of public health was at Aberdeen, and it was a failure. In spite of that there were suggestions on the part of officers of public health that we should try again, and I persuaded the Provisional Committee that it should be done this time, and therefore one afternoon was devoted to that purpose. It is too much to expect to discuss two important papers in one morning, and then follow that up in the afternoon with two more of equal or greater importance. In the course of a long day men are apt to get tired, fatigued, and even irritable—(laughter)—and then they do not afford the assistance they might give to the chairman. Since on this occasion we have realised the great interest this section has aroused, and is likely to arouse in the future, my suggestion is that instead of an afternoon being devoted to public health, a whole day be given to the subject. (Hear, hear.) The Council will go into all these things, and they will do their best, their utmost, to see that in future years matters affecting public health will be very carefully considered in order to make the wheels run even more smoothly than they have done this time. (Hear, hear.)

The PRESIDENT: With those remarks I think you may rest assured that the Council will give this matter due consideration and weight. If you are in agreement with the suggestion will you please signify in the usual way?

The suggestion was unanimously agreed to.

Proceeding, the PRESIDENT said: The third item we have to discuss is "Resolutions." As there are none, we will pass on to "Votes of Thanks."

I claim the privilege, as your newly-elected President, to propose a very hearty vote of thanks to our immediate past President. (Applause.) The National Veterinary Medical Association of Great Britain and Ireland is under a deep debt of gratitude to Professor Wooldridge, not only for the work he has done during the past year, but also for the work he has done for the Association during the very long period of twenty-four or twenty-five years. For sixteen years of that time he has acted as our Treasurer, and during some very lean years indeed, but he did his work then as he has always done it—most efficiently, and with all his heart. We respect Professor Wooldridge not only for his high qualifications of head, but also for those of his heart, and we shall remember with gratitude the very able manner in which he conducted the work of the Association during the past year, not forgetting the social side of it, for which he has catered so excellently. I would like to associate with this vote of thanks the name of Mrs. Wooldridge (applause) whose charming welcome to all of us was the key note to all the proceedings. On behalf of this Association I wish to express to your, sir, our very grateful thanks for the work you have done during a very long period, and particularly during the past year. I ask you then, gentlemen, to give Professor Wooldridge a most cordial vote of thanks.

The vote was passed unanimously and with great acclamation.

Professor WOOLDRIDGE: Please allow me to thank you all for that vote of thanks you have just accorded me in appreciation of the little efforts I have made during the past year, and indeed during many years. With regard to the past year, which terminates with the present Congress, I feel quite happy at the climax. The work has been arduous and it has been a physical strain in many ways, but the duties have been pleasant, or nearly always so, for the duties of a President sometimes entail items you would wish to avoid. I took up the reins with a certain amount of fear and trepidation. I lay them down with a certain amount of gratification, but also with a certain amount of regret, for, after all, one does not like to give up these things at once.

I must take an opportunity of thanking everybody for the support they have given me during the year, and for the personal support I have been given by all at Torquay. It is very gratifying, so far as the members are concerned, that this has been the most successful Congress the Association has yet experienced. (Cheers.) True, the weather has not been too good, but it is thinking better of it, and I see the sun streaming in through the windows. That is a happy augury, and I think and hope that the last item of our social programme will make up for the bad weather we have had. The programme has been pretty full and we have really not had much time to think about the weather. I must personally thank my Vice-Presidents for the assistance they have given me at the various meetings. I must thank you all, too, on behalf of my wife, for the kind things you have said about her also. During my year of office she has been the driving power behind me. (Applause.) You might think that is a little doubtful when you notice her physique, but what she lacks in physique she much more than compensates for in spirit and in determination also. Gentlemen, you see the result. (Laughter.)

I have had a pleasant note from the Mayoress of Torquay, who expresses her great regret for her inability to have been present at our banquet last night.

I now have the privilege and the pleasure of proposing a vote of thanks to the Mayor and Corporation of Torquay for their welcome to their beautiful town, and for the facilities they have afforded us in carrying on our work. Those who came down after everything had been arranged do not realise the difficulties that have had to be got over, but those difficulties have been smoothed over and were made extraordinarily easy by the wholehearted assistance

of the Mayor and Corporation, and we owe them a deep debt of gratitude. I would especially like to refer to His Worship, and to his reception and entertainment at the Pavilion. Really, nothing could have been more cordial than the reception which he gave us. Gentlemen, I ask you to accord to the Mayor and Corporation of Torquay our best thanks for the assistance they have given us during our stay here.

Major G. W. DUNKIN having seconded, the proposal was passed unanimously.

Mr. H. J. DAWES (Hon. Secretary): Mr. President, ladies and gentlemen, I have the pleasure to propose a vote of thanks to Lady Wills and the Torquay and South Devon Golf Club.

Lt.-Col. P. J. SIMPSON seconded, and the proposal was passed unanimously.

Dr. O. CHARNOCK BRADLEY: My duty is a very pleasant one. It is to propose a vote of thanks to the readers of papers, the openers, and to all those who contributed to the discussions, and also those who gave demonstrations. Probably I am one who cannot be regarded as having in the past attended the discussions and demonstrations too religiously, and I am quite prepared to admit that that suspicion may be fairly well founded. It is sad, I admit, but when I tell you that I do not remember of recent years attending so many discussions and demonstrations as I have during this past year, perhaps you will agree with my point of view that I am proposing this vote of thanks with some conviction and I think, gentlemen, that this year, although it is always difficult to institute comparisons, this year the papers have been of superlative excellence and of extraordinarily varied interest. (Applause.) The openers of the discussions have also acquitted themselves admirably. The demonstrations given have been not only varied, but I think you will admit they have shown the advance that veterinary science has made during, say, the last ten or fifteen years. (Hear, hear.) I would ask you to look over, review, that period, and then say whether such operations of skilled nicety and magnitude could have been performed then as now. For those reasons, gentlemen, it gives me extraordinary pleasure to propose a vote of thanks to the readers of papers, the openers of discussions, and to those who gave demonstrations.

Professor WOOLDRIDGE: I would like to second that, if only to tell you that all the patients that were operated on yesterday afternoon are bright and cheerful this morning. (Hear, hear.)

The proposal was carried with enthusiasm.

Major W. J. B. DE VINE: I have the privilege and honour of proposing a vote of thanks to the Provisional Committee. Any of you who may have acted on Provisional Committees for the "National" in other districts will be able truly to realise the amount of work that is necessary to organise a successful meeting of the "National." I do not wish to mention all the members of the Provisional Committee individually, but there are one or two who undoubtedly deserve special mention for the excellent work they have done. There is Mr. Masson—(applause)—who, in addition to officiating as Chairman of the Provisional Committee, arranged for the whole of the demonstrations which took place yesterday afternoon. He realised that the weather in Torquay, as elsewhere, is not always fine, and so he provided a well lighted and ideal place in every way for the demonstrations. I think our thanks to Mr. Masson for that in itself alone are well earned. (Applause.)

Mr. H. E. Jackson, whilst acting on the Committee, was able to provide for his masonic brethren.

Major Wright looked after the golfers. Unfortunately, the weather was not suitable, but I am sure the keen golfers enjoyed the arrangements that had been made by Major Wright.

One man in particular, above all, I must mention, is Mr. Barons Nelder. (Applause.) He is an ideal man for the job. He was certainly cut out for being the Local Secretary of this Provisional Committee. These poor local secretaries are worried about from pillar to post. They are never where they are wanted. They never can be found when they are urgently required. That may be so in most cases, but in Mr. Nelder's case it was quite different, and I think the thanks of all the members of the profession are due to him for the work he has carried out. (Applause.) I propose, then, that a vote of thanks be given to the whole of the members of the Provisional Committee.

The PRESIDENT: I think the name of Mr. Norman should be included. (Hear, hear.)

Capt. G. DUNLOP MARTIN seconded, and the proposal was carried unanimously.

Mr. CHAS MASSON (Torquay): On behalf of the Provisional Committee I thank you very much, gentlemen. As chairman, I have been very lucky to have had such a keen committee, particularly those gentlemen whose names have been mentioned. In fact, a good name for them might be "The Big Five." (Laughter.) We may have proceeded perhaps on somewhat new lines, but I think an experiment now and again is worth trying. (Hear, hear.)

Major W. N. WRIGHT (Torquay): I also wish to thank you very much for what you have said about the Provisional Committee. The work involved has been a very great pleasure to all of us, but I think more thanks are due to our local secretary than anybody else.

Mr. W. D. REES: I do not think this Congress should close before tendering our best thanks to the Ladies' Committee for the admirable arrangements for the functions they arranged during the week. I know I am speaking on behalf of the Congress, and can assure the members of the Ladies' Committee that we appreciate their efforts and are very grateful for what they have done. I would thank Mrs. Wooldridge, the Chairman of the Committee—(applause)—and I would also specially offer our thanks to Mrs. Masson, who has so frequently thrown her house open to the members of committees. I would also like to thank Mrs. Norman for yesterday's function. It is my pleasant duty, therefore, gentlemen, on your behalf,

to tender best thanks to all the members of the Ladies' Committee.

The proposal was carried with acclamation.

Mr. F. T. TREWIN (Watford): I have a vote of thanks to pass to the permanent officials of the Association. I think you will agree that we are very fortunate in our permanent officials. I refer first to our hon. secretary—our good friend Mr. Dawes. (Applause.) No one has devoted more time and energy to the work and welfare of the Association than Mr. Dawes, and it is a matter of great gratification that he is still willing and able to spare no time and expense in the service of the Association. Our hon. treasurer, Mr. West, must also be mentioned. The finances of the Association could not have been in better hands. With our general secretary, Mr. Knight, an excellent secretary, and Mr. Brown, the editorial representative, they all look after our interests and carry out their duties admirably. We are most grateful to them, I am sure, for their loyal and splendid services, and I have very great pleasure in proposing that we give them a very hearty vote of thanks.

Professor WOOLDRIDGE: As the leader of that team during the past year, I take the opportunity of associating myself very cordially with Mr. Trewin's proposal, and therefore I have pleasure in seconding, and asking you to accord it the reception it merits.

The meeting responded with prolonged applause.

Mr. DAWES: Mr. President, Mr. Trewin, and gentlemen, on behalf of the permanent officials of the Association I thank you very much indeed for the way that you have received this vote of thanks. The permanent officials who carry out most of the work, as you all know, are Mr. Knight and Mr. Brown. They are splendid officers, and spare no effort to make the work of the "National" a success.

The PRESIDENT: We have a gentleman here from India who desires to say a few words. I can just allow you one minute only, sir,

Professor DEY: I come from India to give you a message assuring you of our co-operation and help, and I go back with a very great impression and a message of sympathy to my veterinary students of India. I come from India as the President of the All-India Veterinary Association—an association which we have just started. I have been in the Bengal College since its inception in 1901. I return to India with a great impression of the Royal Veterinary College in Camden Town, and also the Royal College of Edinburgh. I thank my professors, for whom I have a great sense of appreciation and gratitude. I will give that message to my colleagues in India, my students, and to all. (Applause.)

The PRESIDENT: Nothing now remains but to declare this meeting closed, and I want to say I wish you all a safe return to your homes and occupations, none the worse for your stay in Torquay.

Mr. HUGH BEGG (Hamilton): I rise to ask that instructions be given to the Council to see that due propaganda is carried out in connection with the public lecture.

The PRESIDENT: That will be dealt with by the Council. I am sorry that we have omitted specially to propose a vote of thanks to Sir John M'Fadyean for taking all the trouble he did to come here and deliver his important lecture on the prevention of tuberculosis.

A unanimous vote of thanks was passed to Sir John M'Fadyean, which brought the meeting to a conclusion.

The business of the Congress terminated by the holding of a Council meeting, the President (Mr. J. W. McIntosh, occupying the chair.

The Trade Exhibition.

The Trade Exhibition is a well-established feature of N.V.M.A. Congresses, and one which increases annually in interest and importance. This year we were glad to see old exhibitors in evidence and to welcome several new ones, while it was particularly gratifying to learn that all were delighted with the accommodation provided and that the business done was most satisfactory.

The spacious room in which the exhibition was held lay in the path of delegates making their way to the sessional hall, and was a place of cheerful and friendly intercourse.

The stands were most artistically arranged and were found well worthy of inspection by many others than those upon immediate business bent.

Messrs. C. H. Huish and Co. had their usual good display of veterinary surgical instruments and appliances, including violet ray apparatus and electric sterilizers. One noted the original "Record" hypodermic and intradermal syringes fitted with rustless needles, a cheap form of calipers graduated in millimetres and inches, artificial eyes for horses, cats and dogs, and a large assortment of teat and udder requisites, including Professor Nielsen's os fixation forceps. Other specialities were long and short double-channel catheters and a centrifugal machine; Messrs. Huish's own well-known progressive "Certes" and metal inseminators, a large assortment of patent duplex tooth rasps, Revelation horse and cattle mouth gag, Gray's dog gags in various sizes and a goodly show of the ordinary instruments of interest to the profession, also much modern veterinary literature, including Bullock's "Handbook." Also on the Stand was an imposing display of Pasteur vaccines and sera, including the popular cord form of vaccine against blackleg.

Stand No. 2 was occupied by Armour and Company, Ltd., of Queen's House, Kingsway, who have the sole agency in Europe, India, Australia and the Near East for the Armour Laboratory, Chicago, U.S.A., manufacturers of the "Glanoid" series of medicinal products of animal origin.

The Laboratory is adjacent to the largest abattoirs in the world, and has available an enormous quantity of raw material that is utilised before animal heat has left the gland. Only sound glands are used, those impaired being discarded. All animals killed are

inspected before and after slaughter by Government Inspectors, to ensure that the animals are fit for human consumption, therefore, that only satisfactory material is used.

Modern processes for desiccation of the material ensure a finished product of utmost activity within our present knowledge of these products, which include Cerebrinin, Corpus Luteum, Diastase, Lecithin Liver, Myelin, Orchitic, Ovarian, Pancreas, Pancreatin, Parathyroid, Pepsin 2500, 3000, 5000, Pituitary (Whole Gland, Anterior Lobe and Posterior Lobe), Prostate, Spleen, Suprarenal (Crystals, Whole Gland, Cortex), Thyroid and Thymus, Red Bone Marrow, Trypsin, Elixir of Enzymes, and Hæmoglobins. These products are offered in the form of desiccated powder, tablets, capsules, liquors and hypodermic solutions.

Fourteen products have been accepted by the Council of Pharmacy and Chemistry of the American Medical Association and placed on their approved list of New and Unofficial Remedies. Special attention is directed to the thyro-manganese treatment for intestinal toxæmia, and the new non-boilable sterilised ligatures.

Samples of these products were on view, with a descriptive booklet, entitled "Gland Therapy in Veterinary Practice," and small leaflets on most of the known active gland materials.

Messrs. Willows, Francis, Butler and Thompson, Ltd., presented a display replete with interesting features in a most attractive form. Their exhibition was in two sections, one of which showed a wide variety of biological products thoroughly up-to-date; amongst these we may refer particularly to Blackleg Aggressin, Swine Fever Serum and also the latest method of dealing with distemper in the dog, *viz.*, Homologous Anti-Distemper Serum. The well-known therapeutical preparations of the firm, as popular with the profession as ever, were of course accorded prominent notice and we may specially call attention to their anæsthetic chloroform which has proved so reliable for general anæsthesia that it was selected for use at the Congress demonstrations, where it maintained its high character. The new local anæsthetic, Chlorocain, is also one of their products and although only recently brought out has won the confidence of a host of practitioners.

The second section of the firm's exhibit was devoted to surgical instruments and comprised many novelties which aroused much interest and received high commendation.

From an experience of the veterinary profession extending over nearly two centuries, "Willows" can fairly pride themselves on their ability to meet every need of the veterinary surgeon.

On the stand occupied by Messrs. Parke, Davis and Company, manufacturing chemists, of 50 Beak Street, London, W.1., prominence was given to the firm's series of biological products designed for use in veterinary practice. These include Canine Distemper Mixed Bacterin, Anti-Distemper Serum, Anti-streptococcus Serum (Equine) and Anti-tetanus Serum (Veterinary). A comparatively recent introduction is Mixed Infection Bacterin (Bovine) which is serviceable for the treatment of mastitis in cattle. The use of this bacterin is also indicated as a prophylactic agent in calving.

Staphylococcus-Streptococcus Bacterin (Canine) is of service for the treatment of interdigital cysts in dogs and for dealing with secondary infections associated with follicular mange. Hemoplastin is a physiologically-balanced solution of blood coagulating agents, useful for controlling hæmorrhage resulting from accidental injury or from operative procedures.

Among the medicinal agents for oral administration were capsules of carbon tetrachloride, each containing 1 c.c. of the pure drug for use in the treatment of liver-fluke disease in sheep. Capsules of male fern, each containing 28 minims, may also be used for the same purpose. A combination of chloretone, potassium bromide and belladonna is supplied in capsule form for the treatment of chorea following canine distemper. Metagen and cod-liver oil emulsion is a combination of the water-soluble and fat-soluble vitamins useful as a preventive of rickets in puppies and for the correction of other disorders arising from malnutrition.

Included among the agents for external use were Neo-Protosil, a colloidal form of silver iodide, which has an advantage over older types of silver compounds in that it does not give rise to dark stains. It is non-irritating to mucous membrane and may be applied in the form of an aqueous solution or in the form of Neo-Protosil Ointment, 5 per cent. This ointment is supplied in small collapsible tubes with elongated nozzles, which facilitate the application of the ointment to the eyes or to the nostrils. It is particularly serviceable for treatment of conjunctivitis. Hydrogen peroxide solution, P., D. and Co., is pre-eminent for its stability. Germicidal soap, which contains mercuric iodide in soluble form, is particularly serviceable as an active germicide in veterinary practice, among its many applications being for sterilizing the hands of the surgeon after cleansing cows or attendance upon cases of contagious disease. Thermofuge, an antiphlogistic preparation, affords an efficient substitute for poultices as a means of relieving local congestion.

Pituitrin, the original extract of the posterior lobe of the pituitary gland, and adrenalin, which was introduced by Parke, Davis and Co., in 1901, were among the gland preparations shown, which also included tablets of Parathyroid and Calcium, tablets of Thyroid Gland and various compound gland tablets.

The firm also exhibited a series of standardised fluid extracts for oral administration, and a range of medicaments in readily soluble tablets for hypodermic use.

The fifth stand of the series has held by the Veterinary Insurance Company, who displayed their literature, etc., to the best advantage and found a renewal of their representation at our Congress well worth while. Adjacent was the excellent exhibit of the International Serum Company, Norwich, with Mr. Howes in charge. Numbered amongst the wel-

come newcomers, this show made a splendid impression.

Messrs. C. J. Hewlett and Son, Limited, of 35-42 Charlotte Street, London, E.C.2, gave special prominence to powdered derris root, which was recently recommended in the *Veterinary Record* as a powerful remedy for mange in dogs and horses. With it was shown a bath powder, containing soap, bicarbonate of sodium and derris, which is a convenient form for practitioners to dispense. A large assortment of packed drugs and remedies was a noticeable feature, and the display was characterised by the neat labels and effective wrappers. The fact that the veterinary surgeon's own name and address is printed free of charge on these labels is evidently appreciated.

Among the new surgical instruments, the Unique Intradermal Syringe, introduced by this firm, is worthy of special notice. It is a 2 c.c. syringe with a metal-guarded glass barrel, graduated in 1/10 c.c. with graduated piston and regulating screw. It is fitted with a special adapter that enables the syringe to use ordinary "record" needles when desired. In addition to the twelve needles for intradermal work, two special stainless and rustless "record" needles are included in the outfit, which is contained in an aseptic metal case, enclosed in a pouch.

The cow gag, devised by the late Mr. Trevor-Williams, has many advantages and, by means of it, tubing or a probang can be easily inserted, and without risk of being introduced into the trachea. The stomach pump for horses and cattle, invented by the same practitioner, has been successfully used by many veterinary surgeons.

Magnum pessaries, with varying medicaments, are largely employed now in post partum work to keep the uterus clean and aseptic, while the "Handy" teat bougies, with or without copper sulphate, are of almost universal application.

The special pharmaceutical veterinary remedies were elegantly shown in uniform white glass stoppered bottles and comprised such well-known preparations as Parophyroxia, Mist.Chenopodii Co., Mist.Diamorph. Co., Maltovin (for dogs), Eucalyptus Dog Wash, Evapogens (Evaporating Skin Lotions), and many others.

Virophos, which is a recognised tonic food for dogs and cats, and also a special Milk Food for puppies and nursing mothers suitably labelled with dosage, is particularly recommended.

Ung. Iodermiol, a non-staining iodine ointment which does not irritate and is superior to the B.P. preparation, and Anti-thermogen, a capital substitute for poultices and useful in inflammations, have won deserved reputations.

A list of Vaccines and Sera of the Bacteriological Institute, Tours (sole agents, C. J. Hewlett and Son, Ltd.) and of the Pasteur Institute, Paris, was distributed.

Messrs. John Bell and Croyden, of 50 Wigmore Street, W., took two stands, which were always centres of interest, for most effective displays of the products of their veterinary and electrical departments respectively.

Messrs. Genatosan, Ltd., were exhibiting biological products from the world-famed Pasteur Institute, Paris, Toulouse and L'Aigle Laboratories. The products of the first-named are standardised and absolutely reliable and have as a special feature the retention of their potency for an unlimited period, provided they are kept in a cool and even temperature. There is, of course, an unprecedented demand for all forms of Tuberculin, in which Messrs. Genatosan specialise.

The L'Aigle products for mastitis, metritis and contagious abortion, all dead organisms, are now well-known and give the greatest satisfaction to the profession—a claim for which authentic testimony can be produced. The firm wish to emphasise that none but qualified members of the profession have been, or can be, supplied.

Pasteur's Syringes, all sizes, were exhibited and can be supplied on demand.

An attractive exhibit was staged by Messrs. British Glues and Chemicals, Ltd., the head office of which firm is at Imperial House, Kingsway.

This Company, which it is interesting to note, in passing, is the largest firm of bone users in the world, has made a particular study of the all important question of the mineral requirements of farm stock. This aspect of present day feeding may now be said to have passed the experimental stages and the practice of feeding a mineral supplement to stock, more particularly heavy milking dairy cows, pigs, breeding and all young growinganimals, is one well recommended in scientific quarters as a consequence of the excellent results which have been obtained in authentic trials which have been conducted at the various research institutes both in this country (notably the Rowett Research Institute, Bucksburn, Aberdeen) and also abroad.

The bones of the pig, which were exhibited by Messrs. British Glues and Chemicals, Ltd., were an interesting example of osteo-porosis, due to calcium deficiency in the ration, as apart from malformation or rachitic condition due to the same cause. It is of considerable importance to note, in this connection, that it is not sufficient to feed a supplement of lime alone to correct these conditions, as has been shown by experiments conducted in South Africa by Sir Arnold Theiler, in conjunction with Drs. H. H. Green and P. J. Du Toit; it is the amount of phosphoric acid present which influences the deposition of the calcium salts.

Of course, the object of this exhibit was to draw the attention of the veterinary profession to the "Churn" brand Sterilised Feeding Bone Flour, which is manufactured by this Company. This product is guaranteed suitable for feeding purposes, being manufactured from freshly collected, selected English bones, and passed through two highly sterilising processes in the course of manufacture, involving subjection to a temperature of 300°F. for several hours. The manufacturers point out the importance of obtaining a full guarantee with any feeding product

manufactured from bones, and the importance of this will, of course, be readily appreciated. "Churn" brand Sterilised Feeding Bone Flour analyses 65 per cent. Bone Phosphate of Lime and contains, in addition thereto, 10 per cent. of Free Lime (as Carbonate of Lime) naturally present in the bone.

Messrs. British Glues and Chemicals, Ltd., are anxious for it to be known that they will be pleased, at all times, to give full information in connection with their products and will esteem it a favour to be allowed to co-operate in experimental work; moreover, free scientific advice from an entirely unbiassed point of view, with particular regard to mineral adjuncts to the rations of all classes of stock, is obtainable from this Company, whose Agricultural Advisory Department has made a particular study of the subject and is in close touch with the latest developments throughout the world.

Much interest was evinced by leading members of the profession, and those who were unable to attend the Congress or who have not obtained full particulars of this product, would be well advised to write for the booklet issued by this Company, entitled "The Mineral Needs of Farm Stock," and other literature in this connection.

DISCUSSION ON CONGRESS PAPERS.

No. 1.—Diseases of the Bovine Udder and Teats, other than Mastitis.

DISCUSSION ON MR. HUGH BEGG'S PAPER.

The PRESIDENT (Professor G. H. Wooldridge) occupied the Chair during the sesson of Conference on Tuesday morning which followed the Annual General Meeting of the Association. That meeting had proved rather longer than had been anticipated, and the President at once called upon Dr. Tom Hare to open the discussion on the paper by Mr. Hugh Begg on the subject of "Diseases of the Bovine Udder and Teats, other than Mastitis." In doing so, he pointed out that the paper had been circulated, and he was quite sure that the members had read, marked, learned and digested it.

Dr. T. HARE: After reading Mr. Hugh Begg's paper, I have taken the liberty of subscribing another paper. May one suggest that it might be useful for this Association to consider this as a precedent for future discussions, for one conceives that it is not necessarily the duty of the opener and seconder of a discussion to criticise the paper of the essayist, but rather to bring, if possible, another point of view to bear upon the problem that is confronting us? It is from that point of view that I have taken the liberty of subscribing a single observation which may be of value.

May I say beforehand, sir, that I think this Association is particularly to be congratulated in having the contributions of Mr. Begg and Mr. Harvey before it, because they were the two members who, in 1922, subscribed a very valuable treatise upon mastitis and, if I may say so, I regard this paper, or rather our discussion upon it to-day, as being supplementary to that of 1922.

The Pathogeny of Infectious Dermatitis of the Bovine Udder.*

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I propose briefly to survey the pathogenesis of various forms of dermatitis arising as specific focal infections of one or more elements of the mammary skin.

The mammary skin consists of the epidermis derived from epiblast, and of the corium which, arising in mesoblast, merges imperceptibly into, and is indistinguishable from, the subcutaneous tissue. In early fœtal life the milk secreting gland, the sweat glands, the sebaceous glands, and the hair follicles, originate as down-growths of solid cylinders of epiblastic cells into the mesoblast. Each of these four epiblastic structures is enveloped by mesoblast upon which it is dependent for its channels of nutrition and innervation.

In addition to their morphological unity, the epiblastic structures of the mammæ possess a physiological affinity. From its origin *in utero* up to puberty the activities of the mammæ are solely concerned with growth, though the fact that on occasion lactation of the newly-born is observed (Smith, 1901; Leblanc, 1901), points to the establishment at birth of an association with the endocrine system which in later life becomes "an intimate relationship." (Hammett.) The mammæ's steady growth is due principally to an increase of the mesoblastic elements. However, with puberty there comes a second growth impulse to which both epiblastic and mesoblastic elements react. As Hammond (1927) states, "between the calf which has not ovulated and the heifer which has ovulated there is a great difference in the (mammary) gland; the former consists of ducts only while the latter contains marked lobules of alveolar ducts."

A third growth impulse is associated with each œstral period. "It would seem as though the gland underwent a cycle of changes during the œstrus cycle corresponding to but lagging behind that of the corpus luteum, the mammary epithelium being enlarged during its development and shrivelling during it's involution." (Hammond, 1927.) By external appearances the influence of the œstral periods as a rule passes unnoticed, but the mammæ may be somewhat tense and hard, as is not unusual in the bitch, while in rare cases milk may be secreted.

A fourth growth activity is initiated by pregnancy. As gestation advances growth of the entire mamma becomes more pronounced. With the exception of the adipose tissue, which largely disappears, all elements of the mammæ undergo hyperplasia, the increase in size being especially pronounced in primiparæ.

Throughout the four periods of activity we have witnessed the structural preparations for the six to eight months of lactation; preparations not confined to the milk secreting gland but shared at the bidding of the endocrine secretions by all the elements of the mammary system. An example of the correlation of functional activity between the mammary and sebaceous glands is seen in the udder pouches of the ewe approaching parturition. Also, from close

* A paper read in opening a discussion on "Diseases of the Bovine Udder and Teats, other than Mastitis" at the Annual Congress of the N.V.M.A., Torquay, 1927.

observation over the past two lambing seasons, I have been impressed by the quantitative variations in sebum secretion of different ewes; that is to say, the extent of the secretory activity of the sebaceous glands, like that of the milk secreting gland, is an individual characteristic.

Seborrhœic Dermatitis. On the cow's udder the sebaceous glands are more thickly grouped on the "teat quadrant" and the groin, and these locations are greasy to the touch in newly-calved cows. Should these glands be especially active in a cow with a voluminous udder the secretion collects in the groin, and having little or no access to sunlight and fresh air it rapidly becomes rancid, and a medium for micro-organismal growth. The irritants formed by the decomposing sebum or by the bacterial activity give rise to a dermatitis, which spreading centrifugally, becomes converted into a raw painful area.

To this condition Begg has rightly drawn attention, but I would rather he had preserved its name of seborrhœic dermatitis as more indicative of its pathogeny than the term erythema, which is but a symptom of dermatitis. Seborrhœic dermatitis of the groin is a pathological condition arising as a consequence of functional hyperactivity of the sebaceous glands, and it illustrates, what will also be found to be characteristic of the infective eruptions, that the initial origin is associated with the commencing functional activity of the mammary gland (*i.e.*, lactation).

Infection of the Sebaceous Glands and Hair Follicles. The skin of the udder is studded with long fine silken hairs termed lanugo hairs, each of which is contained within the excretory duct of a large sebaceous gland. On the other hand, each pigmented hair of the pilosebaceous system of the trunk lies within its own follicle, and into the latter the ducts of two or more sebaceous glands open. Pyogenic infection of the hair follicle of the udder and of its sebaceous gland (*i.e.*, folliculitis) gives rise to a lesion of distinctive character, namely, a raised pustule from the centre of which the lanugo hair projects. The initial crop of discrete lesions almost invariably arises on the quadrant bounded by the four teats, and thence, such is its chronic nature, the infection spreads slowly upwards into the groin and perineum.

The boil, or furuncle, is another variety of pyogenic infection arising in the pilosebaceous system of the udder, but it is, in contradistinction to folliculitis, an acute, angry, hot, and very painful lesion which produces a degree of constitutional upset.

Acne is stated to occur in the mammary sebaceous glands, but I have been unable to satisfy myself that this claim is justified. It appears probable that the term has been misapplied to the eruption of folliculitis (Hutyra and Marek, 1922).

This group of pyogenic infections of the mammary pilosebaceous glands does not appear upon the teats for the simple reason that the skin of the cow's teat contains neither lanugo hairs nor sebaceous glands.

Infection of the Skin of the Teats. The teats, however, are the site of origin of an acute streptococcal inflammation of the epidermis, termed impetigo. One to four thin-walled vesicles develop within twelve hours of the appearance of a transient erythema near the base of a teat. The vesicle is almost invariably ruptured at the next milking, leading to the production of a circular scab resting upon an ulcerated surface. The eruption is readily conveyed to other teats of the animal and to the teats of in-contacts, and in neglected cases the body of the udder may become affected. It is to impetigo that the terms "false cow-pox" and "sore teats" were at one time erroneously applied.

To the individual untreated cow the consequences of any one of these infectious dermatites are those of suppuration, but I am unable to offer any figures as to the relative incidence of secondary local abscess formation, mastitis, or even pyæmia. May we request our veterinary officers of health to supply this information in their forthcoming annual reports?

Elsewhere (Hare, 1926) I have given details as to the manner in which folliculitis and impetigo spread from the infected to the udders of healthy in-contact cows; also the principles of prophylaxis to be adopted in such cases have been fully dealt with by Begg (1924.) But the spread of these eruptions is not confined to the udders of in-contacts, as during the past lambing season I studied the spread of folliculitis from the udder of a ewe to the sebaceous glands of the lips of both her three-day-old lambs,—an observation which emphasises the danger of contagion to sucklings. Were it not for their contagiousness, it is highly probable that few of these infective eruptions would be brought to the notice of clinicians. Even veterinary officers of health may not at their periodic examinations experience more than isolated cases in individual herds. The figures (*vide* table) supplied through the kindness of Mr. Hugh Begg, to which are added those recorded by Savage (1912), suggest that udder and teat eruptions are found in three out of every thousand milch cows.

TABLE SHOWING THE PERCENTAGE INCIDENCE OF BOVINE UDDER AND TEAT ERUPTION.

Eruption Year.	*Number of Cows Examined.*	*With Eruptions.*	*Percentage Incidence.*	*Author.*
1908	17,188	115	0.66%	Savage
1924	31,107	60	0.19%	Begg
1925	25,037	103	0.41%	Begg
1926	34,632	29	0.08%	Begg

Unfortunately, such statistics do not permit of comparison between the incidence of eruptions confined to a single cow of a herd and that of epidemics, for it is well known that if the owner dispenses with veterinary supervision these eruptions not infrequently spread throughout the whole or the greater part of a dairy herd. The veterinary officers of health, by presenting in their future reports such a comparative record as I have suggested, will help on the more accurate investigation of the cause of these epidemics.

But other than the problem of direct contagion there is one, possibly more important to the hygienist, which does not receive the emphasis it deserves, *viz.*, the recognition as to how and why the eruption originates. It is not enough that preventive measures should commence with the introduction into the herd either of an infected case or of "carriers." That is to say, attention must be concentrated upon the parturient animal irrespective of the duration of her residence in the herd.

The reason for this spontaneous origin is at present obscure. Until the habits, the type, the physiological and biological characters of the streptococcus and staphylococcus of impetigo and folliculitis respectively have been investigated we shall not be justified in claiming a specific organism for each of these eruptions. However, even though it is not proved that the causative factor is specific, yet it is recognised that each eruption exactly reproduces itself from udder to udder, that, in other words, the anatomical and pathological process is constant and specific. Again, different interpretations may be given of the fact that in one herd an infectious dermatitis passes through a typical course without giving evidence of contagiousness, whereas in another shippon an identical eruption spreads throughout the herd. By one the phenomenon is regarded as due to different virulent bacteria, by another to bacteria of one species possessing varying degrees of virulence, and by yet another to variations in the resistance of the host. It is the old problem of the "seed" and the "soil"; what breaks down the equilibrium maintained between the virulence of the infective organism and the resistance of the skin? Whatever the explanation may be, we recognise that the spontaneous origin is definitely related to the functional activity of the udder.

Of this fact we should take advantage if only for the reason that on the 4th June, 1927, there were in Great Britain 2,451,800† cows and heifers in milk, and thus assuming that our percentage incidence applies to the whole country, there will be over 7,000 cases of dermatitis of the udder and teats. Begg (1927) has remarked that his work in Lanarkshire "was not confined to the detection of diseased udders, but included instruction on the care and treatment of the animals . . ." By instructing the stockowner to regard parturition with respect, by advising him to clean and to keep clean the udders and their environment of every heavily in-calf or newly parturient animal, should we reduce the incidence of infectious dermatitis of the udder? I believe we should; do you?

Conclusions.

1. The productive elements of the mammæ, *i.e.*, the milk-secreting, sebaceous, and sweat glands, also the hair follicles are, with the skin, a developmentally and functionally unified system.

2. Designed but for one purpose, the nourishment of the new-born, this mammary system attains its functional maturity at parturition.

3. Infection of any one or more elements of this mammary system is, with the exception of rare cases of functional activity (*i.e.*, lactation) occurring between birth and pregnancy, directly associated with parturition.

4. The origin of such infections is spontaneous, but their source is as yet unknown; also their power of contagion varies considerably between an isolated case to epidemics affecting every member of the milking herd.

5. It is estimated that there are among the dairy cows of Great Britain at least 7,000 cases per annum of infective dermatitis of the teats and udder.

6. The prevention of mammary infection requires the veterinary profession to impress upon stockowners the necessity for cleaning, and keeping clean, the udders of every in-calf and newly-parturient cow.

† For these figures I am indebted to the C.V.O., The Ministry of Agriculture and Fisheries.

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Mr. F. T. Harvey, F.R.C.V.S. (St. Columb), who opened the discussion in conjunction with Dr. Hare, said: I would have preferred some member of the "National" practising in a large milk-producing district to have occupied my position to-day. We are obliged to Mr. Begg for submitting a paper on the Diseases of the Accessory structures of the milk-producing Apparatus of the Cow, for although many articles have been published and discussions have taken place at many meetings on diseases of the milk gland proper, and on milk after it has reached the pail, little attention has been given the mechanism which stores and transports the milk from the gland acini to the outside. Of the importance of the parts under discussion there can be no question. We may, I think, compare the mammary gland as a whole to a motor car, taking the gland tissue and the secreting mechanism as the engine with its electrical arrangements, and the galactophorous sinus with the teat canal and sphincter as the steering gear and tyres. The former is more or less useless when either of the latter is defective, and a damaged teat may render the most efficient gland a liability rather than an asset. I noted recently that in thirteen successive cases of udder trouble to which I was called seven were cases of mastitis and six related to disabilities of the teat.

Successful teat surgery opens a very wide field to the practising veterinary surgeon, but he can only approach it by a very thorny path, hence arises (as mentioned by Mr. Begg) the tendency to a so-called masterly inactivity in regard to it. To-day we may ask whether teat surgery has materially advanced after fifty years of Listerism and its off-spring—asepticism. I think the reply must be, after reading Mr. Begg's paper, that the advance has been comparatively small. The spectre of weed or mastitis may still confront us after what may have been apparently a simple operation or injury, and where we have thought, in the words of the essayist, meticulous care had been observed in regard to its

prevention. This spectre of mastitis is responsible largely for the masterly inactivities to which I have alluded, and it (mastitis) will continue to dog our footsteps until some new knowledge has been acquired or our technique vastly improved. I think it must be admitted that it were better that a surgeon who operates on a teat—and at the time of operation the gland is unaffected or giving sound milk, and in the course of a day or two mastitis has supervened—that it were better he had stayed away from the case ; and yet how inviting it is to do something to facilitate the milk flow in an obstructed duct, especially in a valuable dairy cow. Few fields to-day offer to successful surgery greater rewards, or are of greater economic importance than that of teat surgery. Time does not permit one to discuss the whole of the conditions mentioned in the paper, and I do not propose to criticise in detail the views advanced by Mr. Begg, but rather to supplement, in a constructive manner as far as I am able, the effort he has put forth.

Difficulties of Teat Surgery.

(1) *The Sphincter.* It is easy to suture a clean cut wound in a teat or to evacuate the contents of the teat canal when the latter is distended, but the ultimate results are less happy than we are apt to obtain when performing similar operations on other parts. The teat has an external epidermal covering, and an internal epithelial lining, and at the junctional point of these two surfaces exists a special structure variously termed "sphincter" or "valve." Now, the latter is a most important structure and may be regarded from the etiological standpoint as a veritable storm centre, and further, in the language of the labourites, it becomes a sort of "centre of gravity" around which gather many of the difficulties met with in the treatment of disease, or injuries, of the mammary apparatus. It is remarkable that a mechanism so important should have received such scant notice. Usually alluded to as a mere collection of unstriped muscle fibres, it is indeed much more. Like its prototype the ileocæcal valve, placed between the small and large bowels, it is both a sphincter and a valve, its main duties being to hold back the milk for more or less lengthy periods and to prevent the entrance to the milk sinus of enemies from without. It is the only organ in the body over which nature has not arranged some form of internal control either of a voluntary or an involuntary character, its action being overcome normally only by external agencies, either of suction or of pressure applied immediately above it, and it is the only part of the teat canal the walls of which are normally continuously in close contact. Lying in the centre of the extremity of the teat, it is found as a small duct, or tube, from a quarter to a third of an inch in length, with an abruptly terminating upper end, and a more or less funnel-shaped lower extremity.

Possessing an epithelial lining and supporting materials of yellow elastic fibres and unstriped muscle, amongst others, its efficiency is augmented by unstriped muscle in the walls of the extremity of the teat, the latter also containing erectile tissue. It is, I think, the latter part of the mechanism which is so frequently treated as the teat sphincter and not the duct—true sphincter above described. I have stressed these points because I think they are of considerable therapeutic importance. We may regard the sphincter mechanism as a very efficient one in the normal condition of the parts, but one which becomes a complete nuisance in the presence of disease of the milk gland or teat, since it holds back both secretions and exudations, thereby favouring toxæmia and septicæmia, the increase of tension and resulting pain, invites trauma as in milking and the forcible expression of disease products, and hinders free circulation in the rest of the part—truly a severe indictment of an apparently simple and normally beneficent arrangement. The sphincter occupies the key position in mammary pathology and therapeutics and the one who can devise some method of throwing it out of action, so to speak, during repair of injuries or resolution of disease, in the parts above (mastitis) without impairing its future efficiency, will be a benefactor to the milk industry and a blessing to the cow herself. I may here point out that there is no clear line of division, in practice, between disease of the teat canal, with its sphincter, and mastitis. Disease of the teat canal frequently results in disease of the gland, and what appears to be a primary mastitis is always followed by disease of the teat membrane. We thus have a sort of vicious circle established in which disease of the one part retards repair, and interferes with healing in the other, so that the ultimate treatment of mastitis often becomes an affair of teat surgery.

I am inclined to think, although unable at present to speak definitely on the point, that in the near future early incision of the teat sphincter, with drainage of the affected gland, will become a routine treatment for mastitis in the cow, along with vaccines and good hygiene, instead of the present antiquated methods of dispersing poison throughout the body, encouraging abscess formation, and ultimate gland destruction. Wounds of the teats, which are well away from the point, are much less troublesome to deal with, and here the syphon is more readily tolerated.

(2) *Bacteriological.* The bacterial associations of the teat are of great importance in surgery. For practical purposes we may regard the teat canal, under normal conditions, as clinically sterile. Bacteria present are unable to make headway, or are non-pathogenic, and the body defences are efficient. But although bacteria are unable to invade the mucous membrane of the teat canal under normal conditions, they may readily do so whenever the tissues are damaged, so that the surgeon has two areas to sterilise before he can operate with any sort of confidence on the teat. Now, while the visible or external surface of the skin may perhaps be easily dealt with, the destruction of organisms which have already invaded and induced structural change within the mucous membrane itself is a most difficult matter, and one which demands our most serious attention in all teat operations. No matter how trivial the operation on the sphincter or teat canal may be, we should prepare the epithelial as well as the epidermal areas, and the former is the more difficult proposition and constitutes a real problem. I have seen great care taken in cleansing a swollen teat, externally, previous to passing a boiled syphon and yet in a couple of days mastitis has developed. We do not know the condi-

tion existing inside a damaged teat and the effects instruments may have on bacterial growth therein, and yet how often do we prepare the field for operations. Acriflavine seems the antiseptic of choice here: it has little effect on leucocytes or other tissues and serum, and probably also milk does not diminish its bactericidal power, which in the presence of serum is twenty times more powerful than corrosive sublimate and 800 times that of carbolic acid. It is very fatal to the streptococcus but, curiously enough, has little action on *B. coli*. I have used it in teat surgery with very good results and it acts well in the early stages of impetigo of the teats, applied in the form of acriflavine paraffin emulsion.

In this connection it would appear that the use of stock vaccine in wounds and injuries of the teat might be of some service in warding off mastitis.

Injuries and Diseases of the Teat Extremity.

I am inclined to attach greater importance to self-inflicted injuries to the part than is Mr. Begg. A cow nipping the teat with her foot in the act of rising may take the top of the teat clean off and particular cows may frequently damage their teats and, sooner or later, some form of stricture follows. A wound is not always present on the outside and laceration of the mucous membrane is probably common. Such accidents become more frequent with advancing age, since teats and udders tend to elongate with time. Injuries, however, may be due to many causes, but they practically all offer the same difficulties in treatment. There will be swelling with its accompanying pain, then forcible milking, and more pain, then the legs are tied to prevent kicking, and the cow's life becomes one of misery and terror. Syphons, bougies, etc., follow, and then mastitis and a prolonged illness, if nothing worse, and the cow passes out of the dairy and goes to be fattened. How is all this to be avoided? I think in this field we have been too conservative in our ways, and have remained old fashioned. The most successful treatment of these cases becomes a matter of dealing with the sphincter, and that early. Tension has to be relieved, pressure milking avoided, syphons and bougies relegated to limbo and the treatment made less worrying to the cow. Some of you perhaps may have seen a paper in the *Record*, on "Diseases of the Sphincter of the Cow's Teat," by O. Stinson, March 14th, 1925. That paper has, I think, received less attention than it deserved. Mr. Stinson divided the swollen teat and sphincter crucially, and obtained good results. I am in agreement with the practice advocated by Mr. Stinson, but in my view the operation may have a much wider application in practice, as I have already indicated. The important point is that a surgical division of the sphincter and teat can be followed by good healing and normal discharge of milk. Why not, then, divide the teat early so as to allow free escape of teat and sinus contents instead of inflicting unnecessary pain by pressing them through a damaged and narrowed channel? Small lumps of fibrinous exudate, coagulated casein, etc., are never entirely removed, and remaining, they act as foreign bodies and promote further pus formation, and so the case continues. In one of these cases of wounded teat, I recently divided the sphincter, and the relief to the animal was most marked.

I have used the expression "surgical division of the sphincter," and I think the matter important. One can get temporary relief by incising the teat canal or by slitting the point of the teat and yet not touch the sphincter proper. Such incisions imperil the future usefulness of the teat, as when healing has taken place the channel will probably be blocked and further trouble ensue. It is, of course, in cases where early operation is decided on that the greatest care has to be observed in dividing the sphincter. To get the best results it is necessary to use a sharp scalpel, having previously inserted a director and, of course, secured the cow. One then divides the channel symmetrically. Specimens present illustrate these points. In my view lack of attention to this feature has been responsible for many bad results in teat surgery.

Amputation of the teat is one of the most useful operations under certain conditions, but it is a confession of failure of the earlier management of the case. It is like amputating a limb for a compound fracture in the old days.

Obstructed and Narrowed Ducts, Curtains, Etc.

All these conditions are invariably due to bacterial invasion of the mucous membrane. One usually meets with them a day or two after the cow has calved, and one or more of the teats are involved, and heifers or first calvers are not exempt, but I would not here give them a separate etiology.

In the cow the usual history would be that the milker had noticed something wrong with the milk, and a slight thickening in the affected teat or teats, at the end of the previous lactation. When milk is no longer secreted the teat shrinks and the walls of the canal lie in contact, and bacteria invading the mucous membrane determine adhesion and thickening at points. When evolution of the glands begins the teat again enlarges, adherent parts are pulled on, and bands and curtains are formed which obstruct the flow of milk.

The further discussion of these matters, however, must be left with subsequent speakers, as I have already exceeded the time limit.

The President: You have heard the opening of the discussion by Dr. Hare and Mr. Harvey, and I think we shall be all agreed that the line on which they have treated the subject is a correct one; that line has been rather to discuss the subject than the paper, which has been under conditions of very considerable limitation. I feel, in a way, that the Council of the Association has a little to answer for in limiting the papers to some extent, because one feels that the writers of the papers have been handicapped in a way, whereas latitude has been granted to the openers of the discussions, when in reality the latitude should have been granted to the writers of the papers. (Hear, hear.)

Mr. G. P. Male: Mr. Begg drew a rather depressing picture of the treatment of obstruction in the teat canal. You all meet with these very often and you know the difficulties—how often it is almost impossible to get the milk away from the udder by means of syphons without getting a mastitis, and when there are scabs at the end of the teat you get almost a complete blocking.

I rise to support what Mr. Harvey has just said with regard to a crucial incision at the end of the teat. I have practised it for twenty years, and obstructions at the end of the teat have practically no fears for me. At the point of the teat, if a crucial incision is made with a fine scalpel, the teat canal is slit up on four sides. The milk escapes for a short time and then there is a certain amount of swelling; later the milk gradually ceases to escape, if the incision is made properly, and the quarter is saved. It is undoubtedly the best treatment that I have found.

Mr. R. HUDSON: I have been asked to bring forward an instrument that I designed some years ago for the breaking down of membranous formations in the upper and middle thirds of the teat. It consists of a pointed spiral and a probe. The probe is inserted and passed through the membrane after sterilisation of the instrument. The spiral is then worked through the teat until it reaches the hole made by the probe, when it is twisted through the membrane for a couple of turns. It is then withdrawn and next is introduced fully and given a sharp pull. By this means the membrane is broken down and you are then able to draw the milk away quite freely. Concerning the treatment of milk fistula, the procedure I have adopted is to put a wire clamp upon the teat just above the fistula and then flush out the teat with an antiseptic solution containing also a little alcohol, and so removing all greasy matter left on the teat. Having incised the area of the fistula well down to the lining membrane of the teat, I suture with interrupted sutures and then put in a lacing suture so as to bring the whole of the wound tightly together.

If that is done there is a tendency for the wound to resist the stretching which takes place during the act of milking. I use a dressing of collodion, and a dusting with iodoform is useful. It is advisable to milk with a syphon for a couple of days, and then I find that it is possible to milk by hand with safety, though with a simple squeezing action only.

There is one thing I should like to suggest before the operation for the reduction of the obstruction of the sphincter is performed, and that is the introduction of one or two drachms of carbolised oil, which brings about rapid healing of the sore. Where the obstruction is caused by clots, etc., the injection of carbolised oil facilitates their easy expulsion.

I quite agree with Mr. Harvey with regard to the sterilisation of the inside of the teat. It is a very important matter, and of course it is rather difficult for the ordinary milker to carry out before the introduction of the syphon. I would suggest that a simple clamp be applied before the teat is injected—it is rather difficult to stop the injection passing up into the quarter unless something of that nature is applied.

With regard to the operation advocated, I think, by Mr. Stinson, I have found it very satisfactory. It will help to avoid such an accident as occurred in the last case I had, in which my incision entered the orifice, but then slipped to one side, and instead of having an incision along the duct, I had an opening a quarter of an inch higher up, through which milk escaped. It was then very difficult to open the duct to that particular point. I thank Mr. Begg for his paper.

Mr. TUDOR HUGHES: I also should like to tender my thanks to Mr. Begg for the very important paper he has brought before us. It is even more important to the cow-owning community at large than to the veterinary profession, because it deals with what may be referred to as the pre-mastitis stage, and also with the state of affairs which prevails when the veterinary practitioner is called in. If the cowkeeper could be made to appreciate the importance of the measures advocated in the pre-mastitis stage I think it would be a matter of valuable dairy economics. The owner usually regards it as a matter of trivial importance and tries to patch the situation up himself with patent remedies and so allows time, which I believe is a great factor before deeper infection occurs, to pass.

I have been very pleased indeed with Mr. Harvey's references to surgery of the teat. I think it is one of the most unfavourable positions for surgical interference which the cow has on her at all.

In view of Mr. Begg's paper, I think his (Mr. Harvey's) advocacy of early amputation of the teat loses some of its value from the point of view that I have stated. Another problem that arises is the question of the blocked teat. What happens under such conditions? From observations I have made when inflating cows' udders for milk fever, I find that some of the gas injected into the first quarter escapes from the corresponding quarter on the same side. When a cow has occlusion of the teat I think the milk of the blocked quarter may be obtained through the other one on the same side, as I believe that the septum is very easily broken down. Consequently, I invariably advocate udder massage for the three-quartered cow.

I think that our thanks are due to Mr. Harvey for pointing out the advantages of acriflavine as a safe injection inside the teat.

I was most struck with Dr. Hare's remarks about the quadrant area of the udder. To me, it is an awkward area of observation: perhaps lady veterinary surgeons, with their mirrors, will secure a reflected view of it, and may thus be able to be first in the field with detailed clinical observations. (Laughter.)

Major D. S. RABAGLIATI: Mr. Begg draws attention to the supernumerary teats. I have always heard it stated that if one of these teats be drawn it is liable to give rise to a sort of mastitis of that part of the gland connected with the teat in question. If there is such an inflammatory condition of such a part of the gland, would Mr. Begg consider this a condition to be classed as a "mastitis" or "suppuration of the udder" as is defined in the Milk and Dairies Acts and Order? In inspecting dairy cows I have found a fairly common condition to be a sort of chronic dermatitis on the skin covering the fossa formed between the two fore-quarters of the udder. Has Mr. Begg noticed this as a common occurrence, and what does he think is the cause? I have never yet satisfied myself as to why it should occur so much in this position. What does Mr. Begg regard as the best means of dealing with it? Mr. Begg did not mention the possibility of the hind-quarters of the udder being affected with scabies—a very objectionable condition if it arises. Would he stop the milk of a cow suffering from

cow-pox, and what does he think is the best treatment? Does he believe in carbolised glycerine as an emollient?

With regard to so-called "Tramp," I have seen a post put between two cows to prevent them trampling on one another when they get up; does Mr. Begg think that of real use as a preventive measure?

Mr. R. H. SMYTHE: I desire to ask Mr. Begg if he can tell us anything about an anatomical condition with which we meet particularly in Friesians, and also in Guernseys, in which fistula of the teat is not directly connected with the teat sinus, but actually with the galactophorous sinus? Such a fistula in reality represents a supernumerary teat. It is a condition with which I have met very frequently and I do not know any treatment which is of any very great use.

It is a very difficult thing to maintain the patency of an ordinary teat, but if you slit the end of such a supernumerary teat you usually end up with an attack of mastitis and, in addition, the teat refuses to heal. If the practitioner has any reputation to lose I think he had better not specialise in teat surgery. (Laughter.) I think one of the things to be avoided is slitting the end of the teat. I have had better results by opening the sinus at the base of the teat, inserting a syphon, and allowing the teat to heal. In draining milk from the sinus I risk a fistula (which surgical methods will overcome) in preference to damaging the end of the teat. It seems to me that the organisms present in the teat are safe until some misguided individual pushes a syphon up the canal and introduces them into the sinus itself.

I do not think there is any treatment better for obstruction of the end of the teat than the red-hot skewer, but I think that better than any treatment is to go home. (Laughter.)

In Cornwall we get a tremendous number of teat cases starting as an impetigo; they spread until the whole of the skin of the teat is stripped and, as a rule, ladies on the farm develop glands under the arm. I usually refer these ladies to the medical officer. Whether these cases are specific or not I do not know, but they are certainly transmissible to man, or rather to mankind—not only the cases we call cow-pox, but also the cases we call impetigo.

Sir JOHN MOORE: I had marked down a question to ask Mr. Begg, but Major Rabagliati has forestalled me—Is the milk from a cow affected with cow-pox injurious as food for human beings? I ask because I was up against it in my own family in India, in the year 1909, when I was in Simla. A certain event was coming on in my family and in view of it I had purchased a beautiful Indian cow. On the day after the event my wife's temperature went up. It was a question in the medical mind at that time whether she was sickening for puerperal fever, ordinary malaria, or some other disease, and as time went on it turned out to be enteric fever. In these curious circumstances I congratulated myself on having this Indian cow for the enteric wife and the new-born baby. A week afterwards I went down to the stable to see the cow, and I was horrified to find that she was suffering from cow-pox—I could, without any difficulty, have vaccinated 100 people from her udder. Fortunately, the pox happened to be on the udder and not on the teats. It was out of the Simla season and it was impossible to buy any milk in Simla at that time, and I had to go on feeding mother and child with the milk of a cow-pox cow. I gave instructions to my milkman to milk the cow very carefully so as not to break the pocks, and this he did, and I took the precaution to boil the milk afterwards. I consulted the medical man in attendance and he said: "Well, it is for you to tell whether the milk is fit for feeding or not," and I told him that I could not find a single word about that matter in any of the books I had read. Mother and baby had been fed on the raw milk for seven days. The former made a very good recovery and the baby never had a single pain or ailment for a whole year. (Applause.) The baby, at the age of eighteen months, became affected with that horrible green diarrhœa children get in India, and which is, I am sure, associated with milk, but we managed to save her.

Mr. E. C. BOVETT: I should like to say I have used this instrument of Mr. Hudson's in many cases of pea in the teat with very good results.

With regard to inflation in milk fever, on one occasion we started inflating the udder and were thinking that the pump was not acting very efficiently when we found that the cow was "blown" similarly to a case of ruptured œsophagus, and she died the same night. There was no possibility of dilating the udder—the air simply passed into the system. It is the only case of the sort with which I have ever met.

The PRESIDENT: I would like to make one reference to the matter raised by Major Rabagliati and Sir John Moore as to the danger of drinking the milk of cows affected with cow-pox. As strict hygienists we are bound to say that the milk from cows affected with cow-pox ought not to be consumed, but one has to search very widely before one can find the slightest evidence of anything wrong occurring as the result of its consumption.

At a recent meeting attended by Medical Officers of Health, I suggested that, far from being dangerous, it might actually be helpful, as it might produce some sort of passive immunity. But the problem is not so easily disposed of as that, and I am not prepared to solve it. Certainly no cows suffering from cow-pox are allowed into the Dairy Show, whereas we have no hesitation in admitting cows with impetigo.

THE REPLY.

Mr. HUGH BEGG (Hamilton), in replying, said: Let me, in the first instance, thank Dr. Hare and Mr. Harvey in your name and my own for the very valuable contributions they have made to my paper and to this important subject.

Dr. Hare notified me of his intention to confine his remarks to eruptive conditions of the udder and teats—a phase of my subject that I could only touch lightly in my attempt to keep down my paper to three thousand words, while Mr. Harvey, as an experienced practitioner conversant with abnormal teat conditions, has very properly given of his experience in that connection.

But I think you will all agree that we are losing our sense of proportion to some extent when an essayist is made to confine the subject he is responsible for to three

thousand words and no limit is put on those discussing it. (Hear, hear.) Perhaps our Council will reconsider the whole question again. (Hear, hear.)

It was to be expected that Dr. Hare, who has in recent days made a special study of mammary impetigo and folliculitis, etc., should deal with that section and, from his medical training, show special regard for the newer nomenclature. In referring to erythema mammillarum and objecting to the term, he considered it to be caused by bacteria which find in the plentiful sebaceous secretion of the udder integument a suitable culture medium when it becomes rancid, but I am convinced that the main initial cause of extensive erythema or, if you care, dermatitis, often seen on the opposed surfaces of the udder and inside of the thigh in newly-calved cows, is mechanical friction—complicated by subsequent bacterial infection. He has rightly said that the spontaneous origin of eruptions is often obscure, and is definitely related to functional activity in the udder, and he asks why that should be. My belief is that most eruptions in the first cases are due to mechanical friction from horny hands creating small lesions that become infected and it is common experience that tender-skinned animals are first affected—primiparæ in the early stage of lactation with thin-skinned teats that can with difficulty support anything in the way of rough handling. It is not so often that you get a single case in an aged cow near the end of her lactation period.

Dr. Hare expressed the view that udder eruptions are now less common and I agree, believing this to be due to better methods in handling dairy cows and, incidentally, may I say in reply to Mr. Rabagliati, who asked why an eczematous condition should be common in the depression in front of the udder, that this is due to the neglect of the attendant, who allows filth to accumulate in the hollow and produce irritation of the skin, akin to what happens when dirt collects in the ear of an individual who persistently fails to wash properly.

I am sorry there has been an entire lack of destructive criticism, for I purposely left many raw places, especially in regard to teat conditions, susceptible of attack, which I expected to attract practitioners.

To Mr. Harvey we are indebted for the exhibits he has produced illustrating teat eruptions, etc. He has very correctly said that there is a vicious circle or connection between mammitis and induration of the teat. It is often difficult to determine which was the initial pathological condition, the indurated teat or the weed. In illustrating the great importance of sound teats to a dairy cow, he made allegorical comparison of the cow's mammary apparatus to a motor car and compared the teat to an essential unit of the car. We often say of the horse "No foot, no horse," and we may equally say "No teat, no cow." We have only to consider how very important healthy and efficient teats are to a newly-calved and deep-milking cow.

Mr. Harvey has stated his method of incising the sphincter properly to enable withdrawal of secretion when the point of the teat is stenosed from injury or other cause, and has emphasised the need for preparing the epithelial lining inside the teat as well as the integument before all teat operations. He advises the use of acriflavine, and is right in advocating early cutting of the sphincter if we are to avoid an attack of mastitis. Referring to the difficulty in properly cutting the sphincter, he criticises Mr. Stinson and myself for not fixing the cow before using the knife, but in a synoptical paper, and knowing the need for casting the cow, the proper fixing of the patient must be inferred.

I am of opinion that we err in being too conservative when the teat is blocked, mammitis is well begun and there is little or no prospect of saving the quarter. The febrile cow suffers soon from sapræmia with swelled hocks and fore fetlocks, decubitus increases, she bumps her brisket against the trough in attempting to rise, suffers from bed sores, loses her capacity to yield milk in the unaffected quarters, and becomes a sorry spectacle, while the practitioner's account for visits made may remain unpaid. The best practice is to amputate the teat timeously and let the cow empty the diseased product in exercise, using antiseptic douching with a Higginson's syringe. I agree with Mr. Male that the crucial incision of the teat is worth trying in the early stage of stenosed sphincter while the secretion is almost unaltered, but a single incision does as well, about half an inch deep and made preferably with a flat razor blade. This is easily done with the cow cast; there is no need to tie her feet, and the operator leaning over the trunk of the cow turns up the point of the teat and incises it deeply enough to allow the escape of the secretion. Our endeavour at all costs should be to save the cow's health and the utility of the other quarters by early operation—amputation of the teat if necessary. It is only by experience that one learns when and how to act, but in many cases it would be much better to send the cow to the butcher than lead the owner to believe that good results can follow conservative treatment. The young practitioner can only learn what is best in the hard school of experience.

I have heard good reports of the use of Mr. Hudson's instrument in cases of "curtained" teat, but one has difficulty in understanding how he manages to avoid infection of the inside of the teat when he has cause to work at it for three or four minutes in the manner described by him. Generally speaking, the less interference the inside of the teat gets the better.

It is true, as Mr. Hughes says, that mastitis is very often well begun when the veterinary surgeon is called in, and in such a case, with suppuration commenced, removal of the teat is called for.

Mr. Rabagliati asked whether the drawing of supernumerary teats is the cause of mammitis, and one can only say that if they become infected the disease is usually confined to the small area of udder tissue which they drain.

Mr. Rabagliati has stated that he would stop the milk of a cow when suffering from cow-pox, and I suppose that even the owner would do so in bad cases, while Sir John Moore asks if such milk would be dangerous, but I think you will agree that the latter has quite fully answered his own question since the use made of such milk had no bad result. Like the chairman, I cannot see that there would be much danger, and think that possibly it would serve to give protection or immunity against the disease.

Continued at foot of first column next page.

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NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Oct. 10th—Meeting of the Editorial Committee, N.V.M.A., 10 Gray's Inn Square, 4-30 p.m.
Oct. 10th—Last day of entering dogs for Royal Veterinary College Show.
Oct. 11th—Meeting of the Derbyshire Division, at Derby, 2-30 p.m.
Oct. 13th—Meeting of the Central Division, 10 Red Lion Square, 6-30 p.m.
Oct. 13th—Meeting of the Lincolnshire and District Division, at the Albion Hotel, Lincoln,
Oct. 14th—Meeting of the Lancashire Division, Brownlow Hill, Liverpool.
Oct. 15th—Meeting of the Scottish Branch, Gleneagles, Perthshire.
Oct. 27th—Royal Veterinary College Championship Dog Show, Crystal Palace.
Oct. 27th—Lecture by Major Dunkin, on "Distemper," Crystal Palace, at 5 p.m.
Oct. 28th—Presentation of Prizes by H.R.H. Princess Mary at Royal Veterinary College Dog Show, Crystal Palace.

Discussions on Papers presented to Congress.

In this issue of the *Record* we publish the report of the discussion on the paper by Mr. Hugh Begg, F.R.C.V.S., Hamilton, "Diseases of the Bovine Udder and Teats other than Mastitis," of which the openers were Dr. Tom Hare and Mr. F. T. Harvey.

Immediately succeeding numbers of the *Record* will contain reports of discussions on the following papers: "The Clinical Aspect of Mange and Eczema in the Dog," by Major F. Chambers—Openers: Capt. G. Dunlop Martin and Major W. N. Wright; "Lightning and Electric Shock in Animals," by Capt. S. J. Motton—Openers: Messrs. H. Caulton Reeks and H. P. Standley; "The Veterinary Surgeon in relation to Meat Inspection," by Lt.-Col. T. Dunlop Young—Openers: Major J. A. Dixon and Mr. R. W. Hall; "Diseases of the Cow considered in relation to Milk Legislation," by Major W. J. B. De Vine—Openers: Messrs. J. S. Lloyd and G. P. Male; "Intestinal Parasitism in the Horse and its Treatment," by Capt. A. W. Noel Pillers—Openers: Professor R. T. Leiper and Mr. R. H. Smythe; and "Electro-therapy in Domesticated Animals," by Lt.-Col. E. Middleton Perry—Opener: Mr. F. H. Stainton.

Continued from previous page.

Mr. Smythe asked what was the cause of fistula of the galactophorous sinus. The cases I have met with have been due to the removal of the supernumerary teat closely attached to the base of one of the ordinary teats. There is considerable truth in his statement that one's reputation often declines according as one attempts fancy teat surgery.

ROYAL COLLEGE OF VETERINARY SURGEONS.

OBITUARY.

CLODE, E. E., 77 Whitchurch Road, Cardiff. Graduated, London, 9th May, 1893. Died, 29th September, 1927.
DAWSON, T., Horsefair, Pontefract, Yorks. Graduated, London, 11th April, 1888. Died, 25th September, 1927.
ROBERTS, A. E., Queen's Road, Bayswater, W.2. Graduated, London, 15th May, 1890. Died, 20th September, 1927.

Mr. Tom Dawson, M.R.C.V.S., of Horsefair, Pontefract, for many years veterinary surgeon to the Badsworth Hunt Committee and the Pontefract Race Company, and well-known throughout Yorkshire as a judge of horses, died on September 25th, in a Leeds Nursing Home, after many months suffering from septicæmia following appendicitis. Mr. Dawson, who was twice married, now leaves a widow and a grown-up son and daughter, the latter married.

Professor F. T. G. Hobday has been elected President of the University of London Animal Welfare Society.

The 39th Congress and Health Exhibition of the Royal Sanitary Institute will be held next year at Plymouth from July 16 to 21. Lord Astor has consented to act as President of the Congress.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

Dentition of Pigs.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I should regard it as a favour if you would allow me, through your columns, to solicit the help of members of the profession in connection with the above. Under the auspices of the Scottish National Association of Pig Breeders, we are conducting an enquiry that has for its object the determination of the reliability of dentition as an indication of the age of pigs, and to do this satisfactorily we require as much material as possible in the shape of heads of pigs the age of which is known with absolute certainty. It will be readily understood that the success of the enquiry depends upon the amount of material that can be obtained for examination.

To those of your readers who are willing to help by enlisting the co-operation of breeders, I shall be glad to send details of the scheme of investigation.—I am, Yours faithfully, O. CHARNOCK BRADLEY.

Royal (Dick) Veterinary College,
Edinburgh.
September 29th, 1927.

The Veterinary Surgeon in Fiction.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—To the very interesting collection of references to the Veterinary Surgeon in Fiction, *vide* this journal, vol. iv., pp. 516, 575, 597, 617, 639, 661, 731 and 732, also vol. v., p. 54, may I add yet another? In the "Goose-Feather Bed," by E. Temple Thurston (Putnam's Sons, 1926), an aged but observative character says: "Doctors is same as vets., they looks wisest when they knows least."—I am Sir, Yours, etc., TOM HARE.

Department of Pathology,
The Royal Veterinary College.
October 2nd, 1927.

The Editor acknowledges the receipt of the following:—

Report of a meeting of the Eastern Counties' Division, from Mr. W. Shipley (Hon. Secretary).

Annual Report of the Director, Animal Breeding Research Department, The University, Edinburgh.